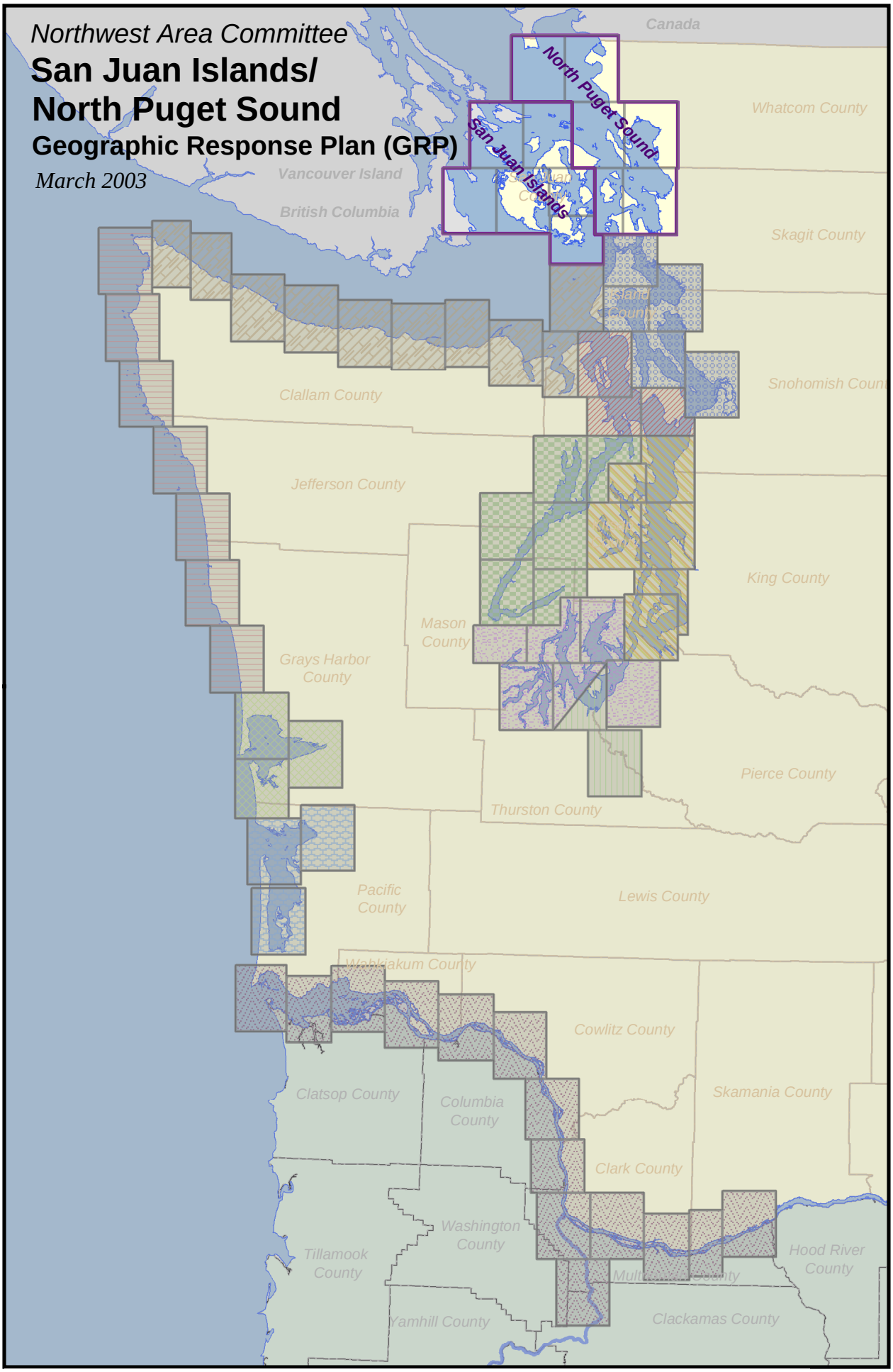


SPILL RESPONSE CONTACT SHEET

Required Notifications For Hazardous Substance or Oil Spills

USCG National Response Center.....**(800) 424-8802**
In Oregon:
Department of Emergency Management.....**(800) 452-0311**
In Washington:
Emergency Management Division.....**(800) 258-5990**
Department of Ecology Northwest Regional Office.....**(425) 649-7000**
Department of Ecology Southwest Regional Office.....**(360) 407-6300**

U.S. Coast Guard

National Response Center	**(800) 424-8802**
Marine Safety Office Puget Sound:	
Watchstander	**(206) 217-6232**
Safety Office	(206) 217-6232
Marine Safety Office Portland:	
Watchstander	**(503) 240-9301**
Safety Office	(503) 240-9379
Pacific Strike Team	**(415) 883-3311**
District 13:	
MEP/drat	(206) 220-7210
Command Center	(206) 220-7001
Public Affairs	(206) 220-7237
Vessel Traffic Service (VTS)	**(206) 217-6050**

Environmental Protection Agency (EPA)

Region 10 Spill Response	**(206) 553-1263**
Washington Ops Office	(360) 753-9083
Oregon Ops Office	(503) 326-3250
Idaho Ops Office	(208) 334-1450
RCRA/ CERCLA Hotline	(800) 424-9346
Public Affairs	**(206) 553-1203**

National Oceanic Atmosphere Administration

Scientific Support Coordination	(206) 526-6829
Weather	(206) 526-6087

Canadian

Marine Emergency Ops/Vessel Traffic	(604) 666-6011
Environmental Protection	(604) 666-6100
B.C. Environment	(604) 356-7721

Department of Interior

Environmental Affairs	(503) 231-6157
	(503) 621-3682

U.S. Navy

Naval Shipyard	**(360) 476-3466**
Naval Base Seattle	(360) 315-5440
Supervisor of Salvage	**(202) 695-0231**

Army Corps of Engineers

Hazards to Navigation	(206) 764-3400

Lummi Nation

Tribal Office	(360) 384-1489
After Hours Emergencies	(360) 671-9222

Nooksack Tribe

Tribal Office	(360) 592-5176
Tribal Police	(360) 592-2632

Samish Indian Nation

Tribal Office	(360) 293-6404
After Hours Emergencies	(360) 424-1739

Swinomish Tribe

Tribal Office	(360) 466-3163
After Hours Emergencies	(360) 293-4684

Federal O.S.R.O./ State Approved Response Contractors

All Out Indust. & Env. Services	(360) 414-8655
Certified Cleaning Services, Inc.	(253) 536-5500
Clean Sound Cooperative, Inc.	**(425) 783-0908**
Cowlitz Clean Sweep, Inc.	(360) 423-6316
FOSS Environmental	**(800) 337-7455**
Global Diving and Salvage	(206) 623-0621
Guardian Industrial Services, Inc.	(253) 536-0455
Island Oil Spill Association	(360) 378-5322
Matrix Service, Inc.	(360) 676-4905
MSRC	(425) 252-1300
National Response Corporation	(206) 340-2772

Washington State

Department of Ecology Headquarters	(360) 407-6900
Southwest Region	**(360) 407-6300**
Northwest Region	**(425) 649-7000**
Central Region	**(509) 575-2490**
Eastern Region	**(509) 456-2926**
Department of Fish and Wildlife	**(360) 534-8233**
Emergency Management Division	(360) 438-8639
	(800) 258-5990
State Patrol	
Bellevue	(425) 455-7700
Tacoma	(253) 536-6210
Bremerton	(360) 478-4646

Oregon State

Department of Environmental Quality	(503) 229-5733
Emergency Management	**(503) 378-6377**
	(800) 452-0311

HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

Strategy Selection

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

It is assumed that control and containment at the source is the number one priority of any response. If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).

SAN JUAN ISLANDS/ NORTH PUGET SOUND
Geographic Response Plan

Record of Changes

Date	Change Number	Summary of Changes	Initials of person making change
July 1, 1993	Original Release - North Puget Sound	N/A	N/A
July 1, 1993	Original Release - San Juan Islands	N/A	N/A
Dec. 6, 1994	1st Change	Replacement of document - merger of North Puget Sound and San Juan Island GRPs. Chapter 4 revisions based on field verification.	
March 2003	2nd Change	Update of Chapter 4 using GIS based maps, and new priority tables based on trajectory modeling.	D. Davis

Table of Contents

San Juan Islands/ North Puget Sound, WA

GEOGRAPHIC RESPONSE PLAN

1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators "orders" during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.
Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safehavens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

2. SITE DESCRIPTION

The San Juan Islands/ North Puget Sound is bounded by Point Roberts to the north; the southern tip of Lopez Island and Fidalgo Island to the south; Haro Strait to the west; and the mainland of northern Washington to the east (including Boundary Bay, Semiahmoo Bay, Drayton Harbor, Birch Bay, Lummi Bay, Bellingham Bay, Padilla Bay, Burrows Bay)

The marine and estuarine waters within the San Juan Islands and North Puget Sound are among the most biologically rich and sensitive areas of the State. A wide diversity of shoreline and marine habitats (estuaries, rocks, reefs, and islands), abundant food resources, and exceptional water quality all contribute to making this area especially valuable to wildlife.

This region contains numerous small to medium-sized seabird nesting colonies, a multitude of marine mammal breeding and resting sites, rearing and feeding habitat for marine fish, and one of the most impressive arrays of marine invertebrates in the world. The region is also a temporary home to many species of marine birds and mammals that are seasonal residents or pass through the area during migration.

The importance of wildlife within this region, particularly the San Juan Islands, cannot be overstated. Marine invertebrates and fishes provide an ample food base for the diverse and abundant populations of marine mammals and birds. Direct benefits result from the harvest of economically important fish, shellfish, and bird species supported by this food chain. Non-consumptive use of wildlife has also become increasingly important to our society. Recreational experiences are enhanced by sightings of wildlife. The visible presence of wildlife in an area also provides a sense of well-being to many people, since a habitat rich in wildlife is one that is healthy and productive. This area, because it has been relatively unaffected by human activities, is an ideal living laboratory in which to learn more about the functioning of marine environments.

Refer to Chapter 6 for detailed resource information.

2.1. Physical Features

The San Juan shoreline bordering the exposed areas of Rosario Strait and Haro Strait is comprised mostly of rocky headlands. Contrarily, the beaches open to the inside of the islands are generally sheltered rocky flats. Land in the San Juans is almost all natural, conservancy or rural. State parks and wildlife refuges are located on most of the islands. The San Juan Islands include the following shoreline habitats:[1]

Exposed rocky headlands
Sheltered rocky flats
Pocket beaches along exposed rocky shores
Sand and gravel beaches
Exposed tidal flats
Sheltered tidal flats
Marshes

There is a large vessel traffic separation zone within Rosario Strait. Many tankers transit this area on their voyage to Ferndale. Many ferries also have routes through the island passages, connecting most of the San Juan Islands to each other and the mainland. The Lummi Indian Reservation is located on Lummi Island.

[1] National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Strait of Juan de Fuca & Northern Puget Sound (Seattle: 1984).

The bays that comprise North Puget Sound are generally characterized by tidal flats, marshes, and some sections of exposed rocky headland. The outer islands are mostly exposed rocky headlands, sand and gravel beaches, and areas of exposed tidal flats. North Puget Sound shoreline includes the following shoreline habitats:[2]

Exposed rocky headlands
Pocket beaches along exposed rocky shores
Wave-cut platforms
Sand beaches
Sand and cobble beaches
Sand and gravel beaches
Exposed tidal flats
Sheltered tidal flats
Marshes

Of note is the National Estuary and Reserve in Padilla Bay. An environmentally sensitive area, the bay is home to many different kinds of birds, invertebrates, and sea mammals. Padilla Bay is near the March Point refineries, and therefore of particular concern.

Bellingham Bay has man-made features along its shores, but also has areas of tidal flats, marshes and nesting grounds for seabirds. Samish Bay is also ecologically rich and has several areas of oyster and clam mariculture.

2.2. Hydrology

Puget Sound is generally a two layer system where the less saline surface water, with freshwater inputs from land, have a net seaward flow, and denser bottom water flows landward. Bottom water currents move southward toward Puget Sound through Rosario Strait. However, bottom water currents move northward through Haro Strait. Surface waters move southward through both straits.[3] The net surface current within the Georgia Strait is towards land, however, it does flow seaward out of Bellingham Bay.[4]

Vertical mixing occurs in many of the shallow straits and bays of this region, therefore it is possible for pollutants to return or stay in the confined estuaries. The entire region is greatly affected by tidal currents.

2.3. Currents and Tides

The mean tidal range (MHW-MLW) for the area from Bellingham Bay to Padilla Bay is 4.2 feet to 5.9 feet. The diurnal range (MHHW-MLLW) is 7.3 feet to 8.6 feet.[5] Tides vary throughout the San Juan Islands due to the intricate system of passages and inlets between the islands. However, generally, the mean tidal range (MHW - MLW) is 4.2 to 7.3 feet. The diurnal tidal range (MHHW - MLLW) is 5.2 to 8.6 feet.[6]

The tidal currents within North Puget Sound bays are weak and variable, however, within Rosario Strait average flood tide is 1.1 knots from the Northwest and ebb tide is 1.9 knots from the Southeast.[7] Currents tend to increase in the narrow channels including Guemes and Bellingham Channels. Lopez, Thatcher, and Obstruction Passes

[2] National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Strait of Juan De Fuca & Northern Puget Sound (Seattle: 1984).
[3] Evans Hamiliton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-125.
[4] Evans-Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-123.
[5] National Oceanic and Atmospheric Administration, Tide Tables West coast of North and South America (1994).
[6] National Oceanic and Atmospheric Association, Tide Tables West Coast of North and South America. (1994).
[7] National Oceanic and Atmospheric Ad ministration, Tidal Current Tables Pacific Coast of North America and Asia (1994).

within Rosario Strait are reported to have currents obtaining velocities of 3 to 7 knots.[8] There is a continuous flow from Portage Bay into Hale Passage, regardless of tides or winds.

It is difficult to generalize the currents in and around the San Juan Islands. As a broad rule, the currents are stronger in the straits and passes along the outer edge of the islands than on the inner passes. Flood currents throughout the San Juan area tend to be weaker than the ebb currents. Between maximum flood and maximum ebb, the currents will form eddies in some areas. Two larger eddy areas are off the southern ends of Lopez and San Juan Island.[9]

Tides and currents vary with seasonal runoff and lunar cycles in localized areas. Spill responders should consult tide and current tables for their particular location.

2.4. Winds

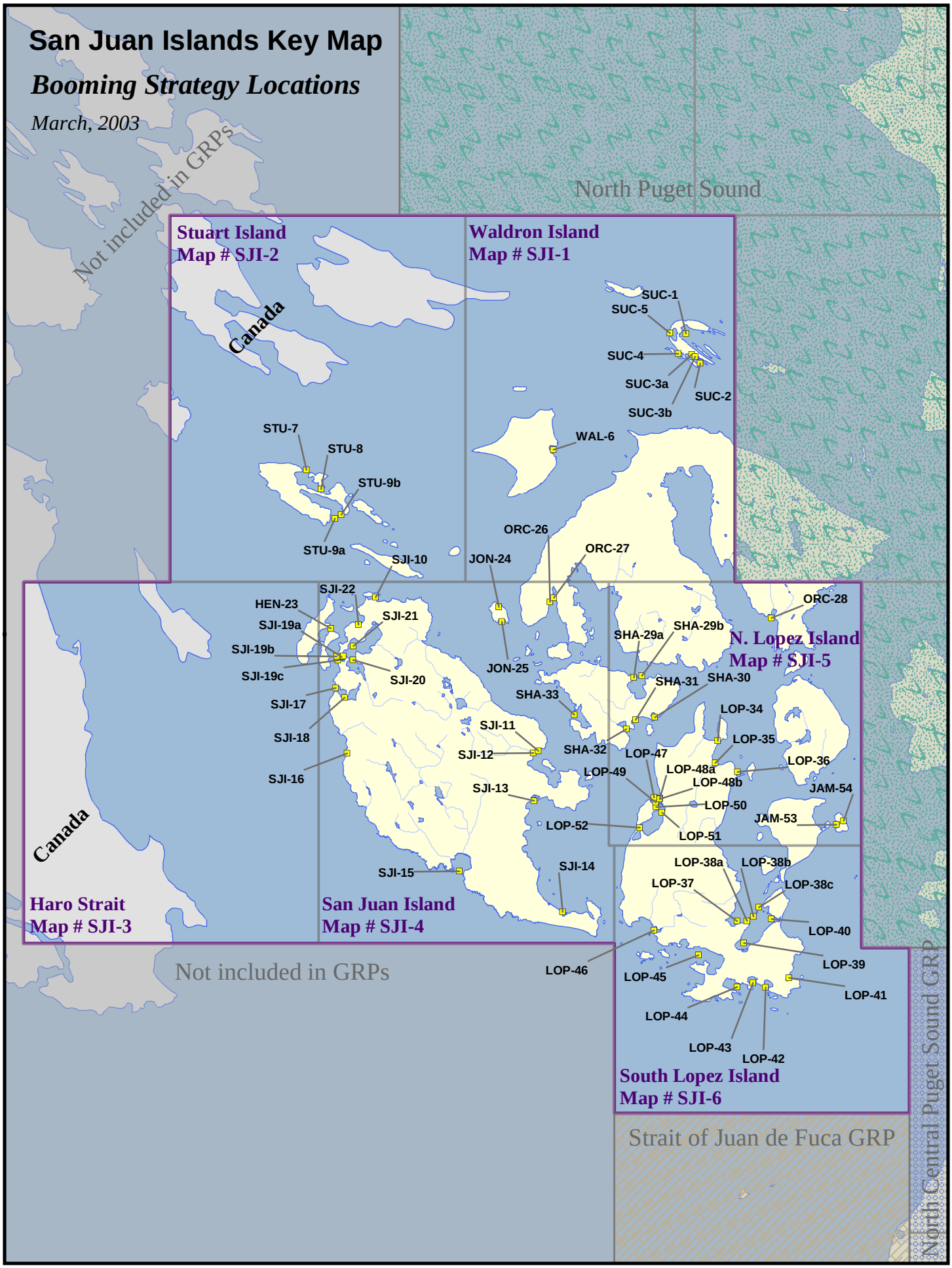
Because Puget Sound is bordered by mountains to the south and east, the strong westerly flow north of the Olympic Mountains is split to the north and south when it reaches the east side of the Sound. Winds in North Puget Sound are generally south, 10 to 20 mph April through May and October through March. During the summer months, they decrease to 0 to 9 mph on average.[10] Local wind conditions may vary.

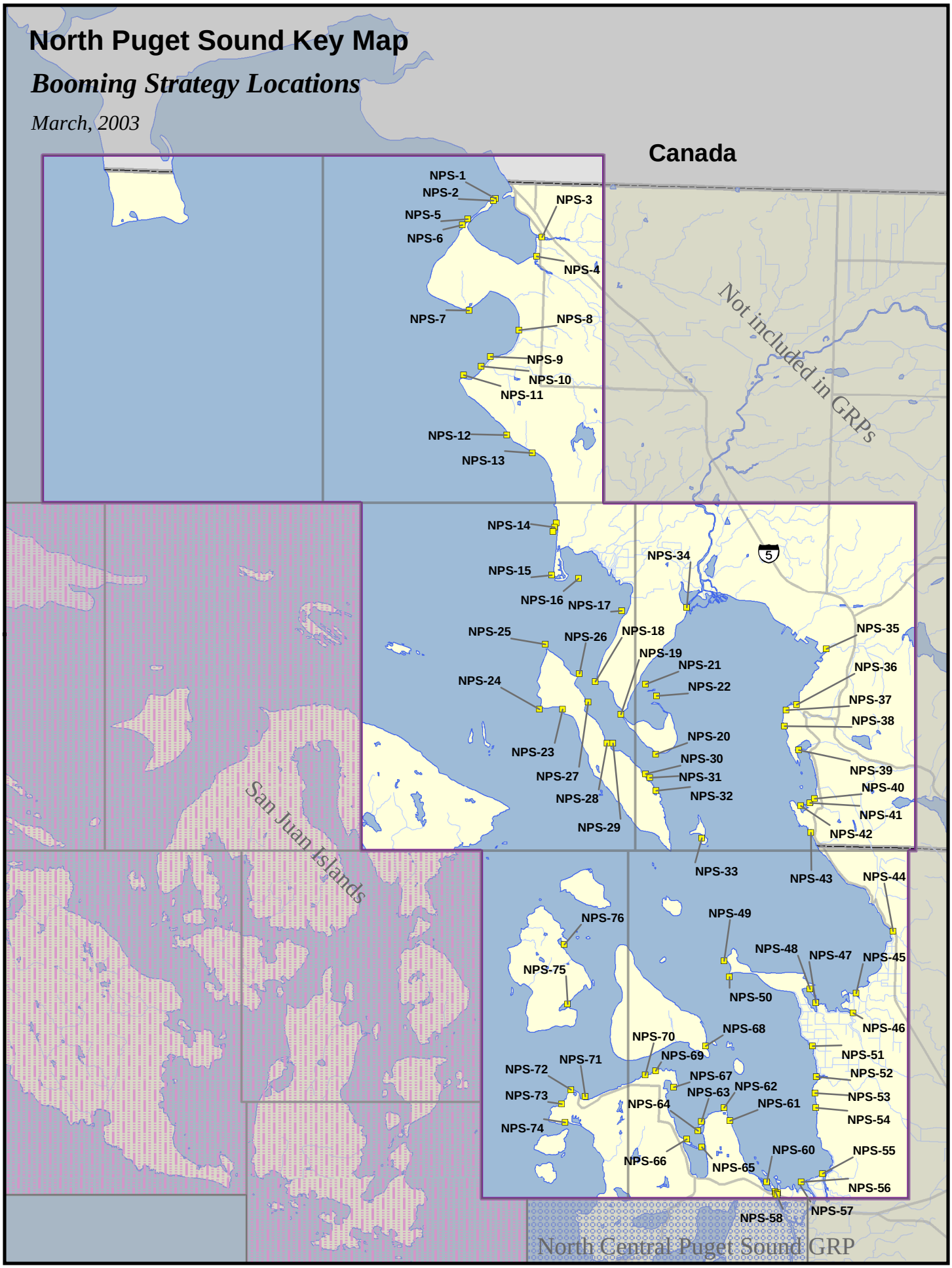
In North Puget Sound, Squamish Winds, gales of up to 50 miles per hour, may occur in localized areas on clear winter days. Storms are common during the fall through spring with winds from a generally southern direction.[11]

2.5. Climate

The area has a maritime climate with cool summers and mild winters. The annual precipitation is between 18 and 50 inches. From September through early February, Georgia Strait is affected by land fogs that form on cool nights with clear skies. During long cold periods, these may persist for several days.[12]

[8] Island Canoe, Inc, San Juan Current Guide, Third ed. (Bainbridge Island, Washington).
[9] National Oceanic and Atmospheric Association, Tidal Current Tables Pacific Coast of North America and Asia (1994) and Canadian Hydrographic Service, Current Atlas for Juan de Fuca Strait to Strait of Georgia (1983).
[10] Lilly, Kenneth E., Jr. Marine Weather of Western Washington (1983).
[11] National Oceanic and Atmospheric Administration, U.S. Coast Pilot (1993) 307.
[12] Ibid.


San Juan Islands Key Map
Booming Strategy Locations
March, 2003
Not included in GRPs
North Puget Sound
Stuart Island
Map # SJI-2
Waldron Island
Map # SJI-1
Canada
SUC-1
SUC-5
SUC-4
SUC-3a
SUC-2
SUC-3b
STU-7
STU-8
STU-9b
STU-9a
WAL-6
SJI-10
ORC-26
ORC-27
JON-24
SJI-22
HEN-23
SJI-21
SJI-19a
SJI-19b
SJI-19c
SJI-20
SJI-17
SJI-18
SJI-16
JON-25
ORC-28
SHA-29a
SHA-29b
N. Lopez Island
Map # SJI-5
SHA-31
SHA-30
SHA-33
LOP-34
SJI-11
LOP-35
SHA-32
SJI-12
LOP-47
LOP-36
LOP-49
LOP-48a
LOP-48b
SJI-13
JAM-54
LOP-50
JAM-53
LOP-52
LOP-51
Canada
SJI-15
SJI-14
LOP-38a
LOP-38b
LOP-37
LOP-38c
LOP-40
Haro Strait
Map # SJI-3
San Juan Island
Map # SJI-4
Not included in GRPs
LOP-46
LOP-39
LOP-45
LOP-41
LOP-44
LOP-43
LOP-42
South Lopez Island
Map # SJI-6
Strait of Juan de Fuca GRP
North Central Puget Sound GRP


North Puget Sound Key Map
Booming Strategy Locations
March, 2003
Canada
Not included in GRPs
San Juan Islands
North Central Puget Sound GRP
5
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NPS-2
NPS-3
NPS-4
NPS-5
NPS-6
NPS-7
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NPS-10
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NPS-75
NPS-76

4. GENERAL PROTECTION/COLLECTION STRATEGIES

4.1. Chapter Overview

This chapter details the specific response strategies and resources to protect as outlined by the participants of the GRP workshop for the San Juan Island and North Puget Sound areas. It describes the strategies determined for each area and the prioritization of those strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Maps & Matrices

The maps in this chapter provide information on the specific location of booming strategies. They are designed to help the responder visualize response strategies. Details of each booming strategy are listed in corresponding matrix tables. Each matrix indicates the exact location, intent and implementation of the strategy indicated on the map. The "Status" column describes whether the strategy has been visited or tested in the field, and the date of the visit/test. Most strategies include a number for the corresponding shoreline photo, which is available on the Washington Department of Ecology's internet site at http://www.ecy.wa.gov/apps/shorephotos/.

Major Protection Techniques

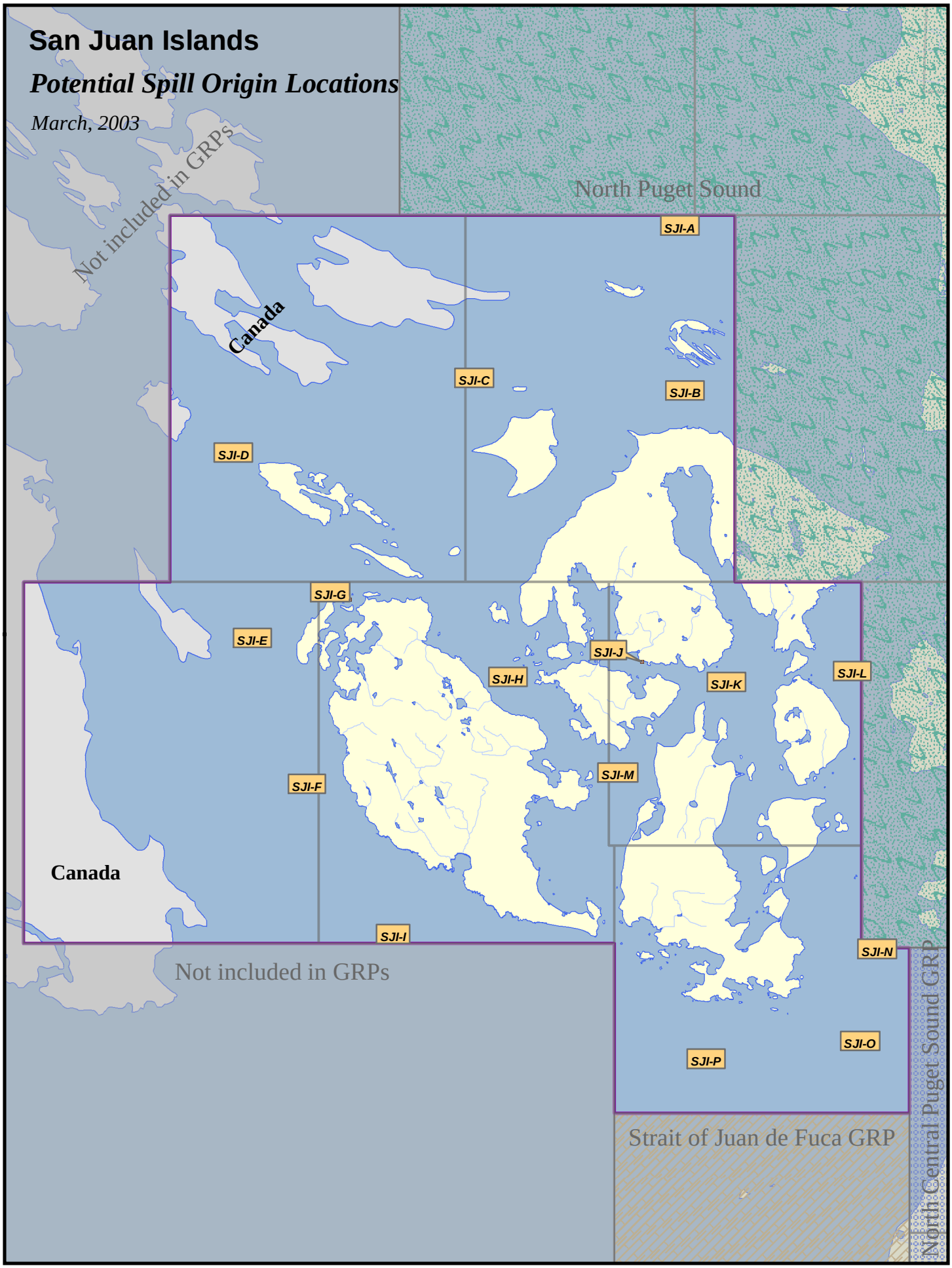
All response strategies fall into one of three major techniques that may be utilized either individually or in combination. The strategies listed in Section 4.2 are based on the following techniques, and are explained in detail in Section 4.3.

Dispersants: Washington State Policy currently does not allow use of dispersants in this area. Certain chemicals break up slicks on the water. Dispersants can decrease the severity of a spill by speeding the dissipation of certain oil types. Their use will require approval of the Unified Command. Dispersants will only be used in offshore situations under certain conditions, until further determinations are made by the Area Committee and published in the Area Contingency Plan.

In Situ Burning: Approval to burn in this area is unlikely due to the proximity of population to a potential burn site. Burning requires the authorization of the Unified Command, who determine conformance of a request to burn with the guidelines set forth in the Area Plan. This option is preferable to allowing a slick to reach the shore provided that population areas are not exposed to excessive smoke. Under the right atmospheric conditions, a burn can be safely conducted in relative close proximity to human population. This method works on many types of oil, and requires special equipment including a fire boom and igniters.

Mechanical Recovery and Protection Strategies: If a spill is too close to shore to use In Situ burning or dispersants, the key strategies are skimming and use of collection, diversion, or exclusion booming to contain and recover the oil, and prevent it from entering areas with sensitive wildlife and fisheries resources. These options are described in detail in Appendix A. Specific skimming strategies are not listed in the maps and matrices, but skimming should be used whenever possible and is often the primary means of recovering oil and protecting resources, especially when booming is not possible or feasible.

Priorities: The strategy priority tables (Section 4.2.) were developed using specific locations where spills are likely to occur. Trajectory modeling was used for each of these "Potential Spill Origins" to identify sensitive resources that would likely be impacted within the initial hours of the spill. A booming strategy priority table was developed for each of the "Potential Spill Origins" based on the sensitivity of resources, feasibility, etc. **Booming strategies should be deployed following the priority table for the "Potential Spill Origin" closest to the actual spill origin.** The map on page 4-2 shows the locations of all Potential Spill Origins for the San Juan Islands and the map on page 4-45 shows the locations for North Puget Sound. The booming strategies indicated in the priority tables are explained in detail in the Maps & Matrices section (Section 4.3.). It is implied that control and containment at the source is the number one priority of any response. If in the responder's best judgment this is not feasible, then the priorities laid out in the priority tables take precedence over containment and control.


San Juan Islands
Potential Spill Origin Locations
March, 2003
Not included in GRPs
North Puget Sound
SJI-A
Canada
SJI-C
SJI-B
SJI-D
SJI-G
SJI-E
SJI-J
SJI-H
SJI-K
SJI-L
SJI-M
SJI-F
Canada
SJI-I
Not included in GRPs
SJI-N
SJI-O
SJI-P
Strait of Juan de Fuca GRP
North Central Puget Sound GRP

4.2.2.1 San Juan Islands Booming Strategy Priority Tables

Table 4-1-1

Potential Spill Origin: SJI-A - North of Sucia Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SUC-1	4-15	
2	SUC-2	4-15	
3	SUC-3a	4-15	
4	SUC-3b	4-15	
5	SUC-4	4-15	
6	SUC-5	4-15	
7	WAL-6	4-15	

Table 4-1-2

Potential Spill Origin: SJI-B - South of Sucia Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SUC-1	4-15	
2	SUC-2	4-15	
3	SUC-3a	4-15	
4	SUC-3b	4-15	
5	SUC-4	4-15	
6	SUC-5	4-15	
7	WAL-6	4-15	

Table 4-1-3

Potential Spill Origin: SJI-C - Stuart Island, NW of Waldron Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	STU-7	4-16	
2	STU-8	4-16	
3	STU-9a	4-16	
4	STU-9b	4-16	
5	WAL-6	4-15	
6	SUC-4	4-15	
7	SUC-5	4-15	
8	SUC-3a	4-15	
9	SUC-3b	4-15	
10	SUC-2	4-15	
11	SUC-1	4-15	
12	JON-24	4-18	
13	JON-25	4-18	

Table 4-1-4

Potential Spill Origin: SJI-D - Northwest corner of Stuart Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	STU-7	4-16	
2	STU-8	4-16	
3	STU-9a	4-16	
4	STU-9b	4-16	
5	HEN-23	4-18	
6	SJI-10	4-18	
7	SJI-17	4-18	
8	SJI-18	4-18	
9	SJI-22	4-18	
10	SJI-20	4-18	
11	SJI-21	4-18	
12	SJI-15	4-18	
13	SJI-16	4-18	

Table 4-1-5

Potential Spill Origin: SJI-E - Between Sidney and Henry Islands			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	STU-9a	4-16	
2	STU-9b	4-16	
3	SJI-17	4-18	
4	SJI-18	4-18	
5	SJI-16	4-18	
6	SJI-15	4-18	
7	SJI-20	4-18	
8	SJI-21	4-18	
9	HEN-23	4-18	
10	SJI-22	4-18	
11	STU-7	4-16	
12	STU-8	4-16	

Table 4-1-6

Potential Spill Origin: SJI-F - Deadman Bay, West shore of San Juan Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SJI-17	4-18	
2	SJI-18	4-18	
3	SJI-16	4-18	
4	SJI-15	4-18	

Table 4-1-7

Potential Spill Origin: SJI-G - North of Roche Harbor			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	HEN-23	4-18	
2	SJI-22	4-18	
3	SJI-20	4-18	
4	SJI-21	4-18	
5	SJI-10	4-18	
6	STU-9a	4-16	
7	STU-9b	4-16	
8	SJI-17	4-18	
9	SJI-18	4-18	
10	SJI-16	4-18	
11	SJI-15	4-18	

Table 4-1-8

Potential Spill Origin: SJI-H - Wasp Islands, west end of Shaw Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SHA-33	4-18	
2	SJI-11	4-18	
3	SJI-12	4-18	
4	SJI-13	4-18	
5	JON-24	4-18	
6	JON-25	4-18	
7	ORC-26	4-18	
8	ORC-27	4-18	
9	LOP-47	4-19	
10	LOP-48a	4-19	
11	LOP-48b	4-19	
12	LOP-49	4-19	
13	LOP-50	4-19	
14	LOP-51	4-19	
If oil is moving south through San Juan Channel then:			
15	LOP-46	4-20	
16	SJI-14	4-18	
If oil is moving north through Upright Channel then:			
15	SHA-30	4-19	
16	SHA-31	4-19	
17	SHA-32	4-19	

Table 4-1-9

Potential Spill Origin: SJI-I - Middle Bank, Inner Strait of Juan De Fuca, South of San Juan Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SJI-15	4-18	

Table 4-1-10

Potential Spill Origin: SJI-J - Orcas Island Ferry Terminal			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SHA-29a	4-19	
2	SHA-29b	4-19	
3	SHA-30	4-19	
4	SHA-31	4-19	
5	SHA-32	4-19	
6	SHA-33	4-18	
7	LOP-47	4-19	
8	ORC-26	4-18	
9	ORC-27	4-18	
10	JON-24	4-18	
11	JON-25	4-18	
12	LOP-34	4-19	

Table 4-1-11

Potential Spill Origin: SJI-K - Upright Head, North end of Lopez Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	ORC-28	4-19	
2	SHA-30	4-19	
3	SHA-31	4-19	
4	SHA-32	4-19	
5	LOP-47	4-19	
6	LOP-48a	4-19	
7	LOP-48b	4-19	
8	LOP-49	4-19	
9	LOP-50	4-19	
10	LOP-51	4-19	
11	LOP-34	4-19	
12	LOP-35	4-19	
13	LOP-36	4-19	
14	SHA-33	4-18	
15	JAM-53	4-19	
16	JAM-54	4-19	

Table 4-1-12

Potential Spill Origin: SJI-L - Obstruction Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	JAM-54	4-19	
2	JAM-53	4-19	
3	LOP-41	4-20	
4	ORC-28	4-19	
5	NPS-72	4-59	Refer to North Puget Sound GRP for NPS strategies
6	NPS-73	4-59	
7	SHA-30	4-19	
8	SHA-31	4-19	
9	SHA-32	4-19	
10	LOP-34	4-19	
11	LOP-35	4-19	
12	LOP-36	4-19	

Table 4-1-13

Potential Spill Origin: SJI-M - Shaw Island, south end			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	LOP-47	4-19	
2	LOP-48a	4-19	
3	LOP-48b	4-19	
4	LOP-49	4-19	
5	LOP-50	4-19	
6	LOP-51	4-19	
7	LOP-52	4-19	
8	SHA-30	4-19	
9	SHA-31	4-19	
10	SHA-32	4-19	
11	SHA-33	4-18	
12	JON-24	4-18	
13	JON-25	4-18	
14	SJI-11	4-18	
15	SJI-12	4-18	
16	SJI-13	4-18	
17	LOP-46	4-20	
18	SJI-14	4-18	

Table 4-1-14

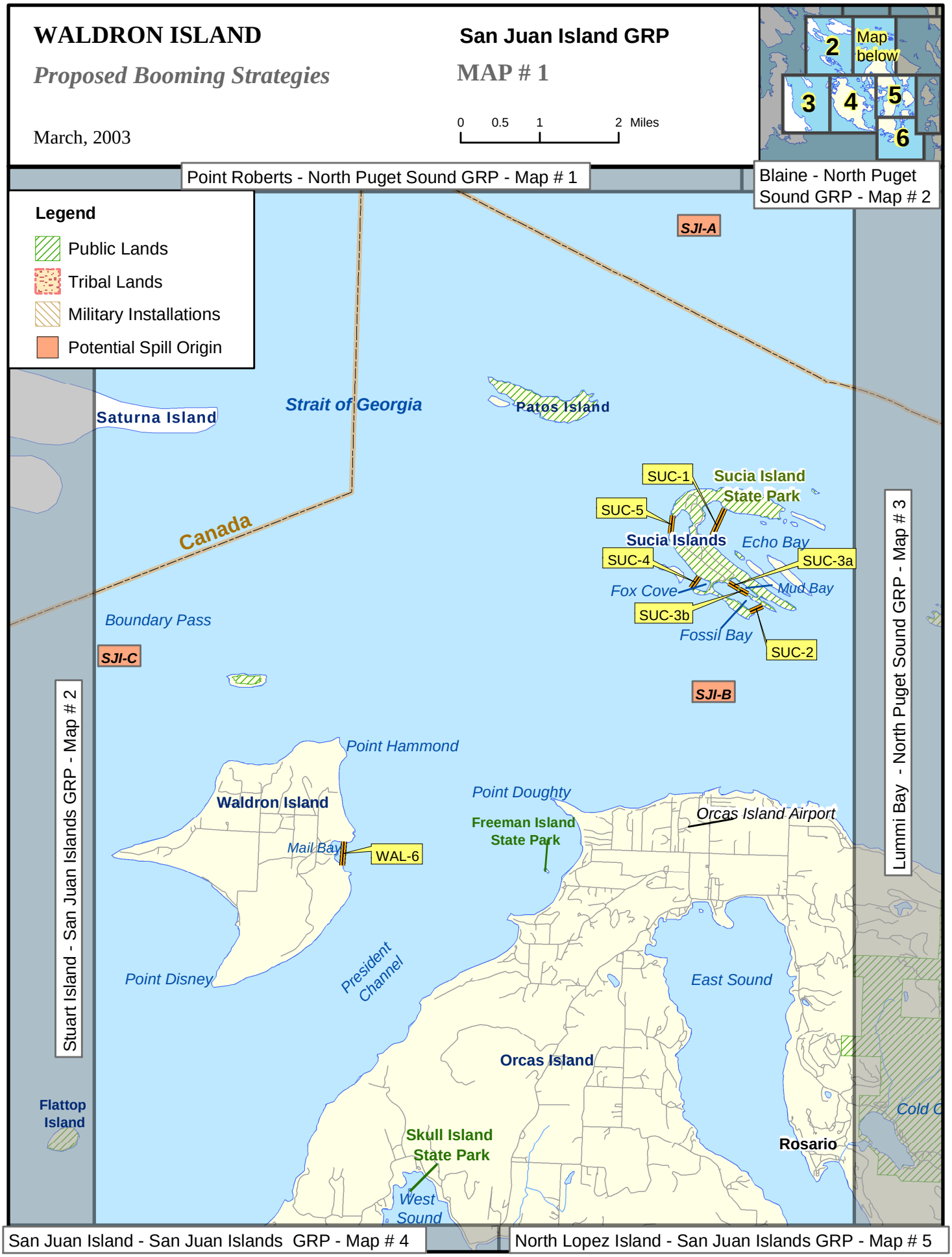
Potential Spill Origin: SJI-N - Rosario Strait, SW of Allan Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	LOP-41	4-20	
2	LOP-42	4-20	
3	LOP-43	4-20	
4	LOP-44	4-20	
5	JAM-54	4-19	
6	JAM-53	4-19	

Table 4-1-15

Potential Spill Origin: SJI-O - Rosario Strait, South Entrance			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	LOP-44	4-20	
2	LOP-43	4-20	
3	LOP-42	4-20	
4	LOP-41	4-20	
5	LOP-46	4-20	

Table 4-1-16

Potential Spill Origin: SJI-P - McArthur Banks, Strait of Juan De Fuca, South of Lopez Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	LOP-44	4-20	
2	LOP-43	4-20	
3	LOP-42	4-20	
4	LOP-45	4-20	


WALDRON ISLAND
Proposed Booming Strategies
March, 2003
San Juan Island GRP
MAP # 1
0 0.5 1 2 Miles
Map below
2
3
4
5
6
Point Roberts - North Puget Sound GRP - Map # 1
Blaine - North Puget Sound GRP - Map # 2
Legend
Public Lands
Tribal Lands
Military Installations
Potential Spill Origin
SJI-A
Saturna Island
Strait of Georgia
Patos Island
SUC-1
Sucia Island State Park
SUC-5
Sucia Islands
Echo Bay
SUC-4
SUC-3a
Fox Cove
Mud Bay
SUC-3b
Fossil Bay
SUC-2
Canada
Boundary Pass
SJI-C
SJI-B
Point Hammond
Waldron Island
Point Doughty
Orcas Island Airport
Freeman Island State Park
Mail Bay
WAL-6
Point Disney
President Channel
East Sound
Orcas Island
Flattop Island
Skull Island State Park
West Sound
Rosario
Stuart Island - San Juan Islands GRP - Map # 2
Lummi Bay - North Puget Sound GRP - Map # 3
San Juan Island - San Juan Islands GRP - Map # 4
North Lopez Island - San Juan Islands GRP - Map # 5

STUART ISLAND

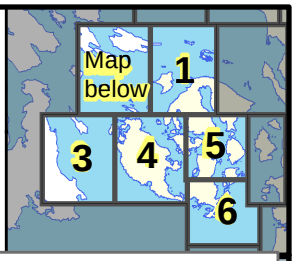
Proposed Booming Strategies

March, 2003

San Juan Island GRP

MAP # 2

0 0.5 1 2 Miles



Area not included in GRPs

Point Roberts - North Puget Sound GRP - Map # 1

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Saturna Island

Saturr

Pender Island

Bound

SJI-C

Canada

Area not included in GRPs

Waldron Island - San Juan Islands GRP - Map # 1

Moresby Island

SJI-D

Charles Point

STU-7

Turn Point

Stuart Island

Prevost Harbor

Satellite Island

Stuart Island State Park

STU-8

Haro Strait

Reid Harbor

Johns Island

STU-9b

STU-9a

Gossip Island

Flattop Island

Spieden Island

Ferry Route

Spieden Channel

Haro Strait - San Juan Islands GRP - Map # 3

San Juan Island - San Juan Islands GRP - Map # 4

HARO STRAIT

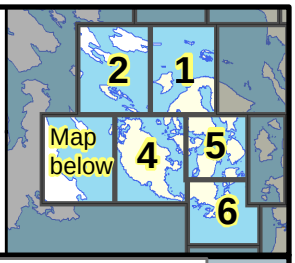
Proposed Booming Strategies

March, 2003

San Juan Island GRP

MAP # 3

0 0.5 1 2 Miles



Area not included in GRPs

Stuart Island - San Juan Islands GRP - Map # 2

Haro Strait

Sidney Island

SJI-E

Nelson Bay

Henry Island

Canada

San Juan Island - San Juan Islands GRP - Map # 4

SJI-F

Vancouver Island

Area not included in GRPs

Area not included in GRPs

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

SAN JUAN ISLAND

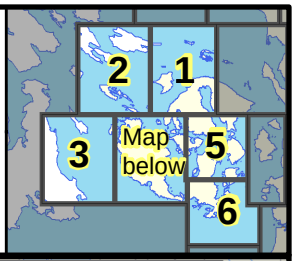
Proposed Booming Strategies

March, 2003

San Juan Island GRP

MAP # 4

0 0.5 1 2 Miles



Stuart Island - San Juan Islands GRP - Map # 2

Waldron Island - San Juan Islands GRP - Map # 1

Haro Strait - San Juan Islands GRP - Map # 3

North Lopez Island - San Juan Islands GRP - Map # 5

South Lopez Island - San Juan Islands GRP - Map # 6

Davison Head
Spieden Channel
Henry Island
SJI-G
SJI-10
HEN-23
Roche Harbor
SJI-22
Nelson Bay
Westcott Bay
SJI-21
SJI-19a
SJI-20
SJI-19b
Garrison Bay
SJI-19c
San Juan Island National Historical Park
SJI-17
Mitchell Bay
SJI-18
SJI-16
Smallpox Bay
Lime Kiln Point State Park
SJI-F
JON-24
ORC-27
ORC-26
Orcas Island
West Sound
Deer Harbor
Victim Island State Park
Jones Island State Park National Wildlife Refuge
JON-25
Ferry Route
Wasp Islands
Crane Island
SJI-H
Shaw Island
San Juan Channel
SHA-33
Point George
Parks Bay
Oceanographic Laboratories
San Juan Island
SJI-11
SJI-12
Ferry Route
City of Friday Harbor
Turn Island State Park
SJI-M
Argyle Lagoon
SJI-13
Griffin Bay
False Bay
Kanaka Bay
SJI-15
SJI-14
San Juan Island National Historical Park
Cattle Point
SJI-I

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Area not included in GRPs

NORTH LOPEZ ISLAND

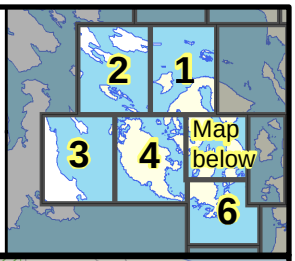
Proposed Booming Strategies

March, 2003

San Juan Island GRP

MAP # 5

0 0.5 1 2 Miles



Skull Island State Park
Rosario
Cold Creek
Waldron Island - San Juan Islands GRP - Map # 1
Lummi Bay - North Puget Sound GRP - Map # 3
West Sound
East Sound
Orcas Island
Doe Island Marine State Park
Victim Island State Park
Olga Marine State Park
Buck Bay
ORC-28
Orcas Island
Island
SJI-J
Blind Island
Harney Channel
SJI-K
Obstruction Island
SJI-L
Shaw Isla
SHA-29a
Blind Bay
SHA-29b
SHA-33
Shaw Island
South Beach
SHA-31
SHA-30
Shaw Island County Park
Parks Bay
Squaw Bay
Upright Channel
Shoal Bay
Ferry Route
Rosario Str
Blakely Island
SHA-32
Canoe Island
Oldin County Park
LOP-34
Ferry Route
Swifts Bay
LOP-35
LOP-36
Port Stanley
Turn Island State Park
SJI-M
Spencer Spit State Park
Spencer Spit
LOP-48a
LOP-48b
LOP-47
Thatcher Pass
NPS-J
LOP-49
LOP-50
LOP-51
JAM-54
Decatur Island
James Island State Park
Fisherman Bay
LOP-52
JAM-53
Bay
Lopez Island
Lopez Sound
San Juan Island - San Juan Islands GRP - Map # 4
Fidalgo Head - North Puget Sound GRP - Map # 6
South Lopez Island - San Juan Islands GRP - Map # 6
Center Island
Dot Rock State Park
Lopez Island
Lopez Pass
LOP-38c
LOP-38b
Rosario Strait

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

SOUTH LOPEZ ISLAND

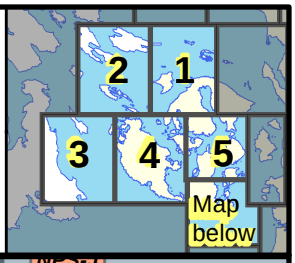
Proposed Booming Strategies

March, 2003

San Juan Island GRP

MAP # 6

0 0.5 1 2 Miles



San Juan Island - San Juan Islands GRP - Map # 4

Fidalgo Head - North Puget Sound GRP - Map # 6

Deception Pass - North Central Puget Sound GRP - Map # 1

Area not included in GRPs

North Lopez Island - San Juan Islands GRP - Map # 5

Fort Ebey - Strait of Juan de Fuca GRP - Map # 10

LOP-47
LOP-48b
LOP-49
LOP-50
LOP-51
LOP-52
LOP-38c
LOP-38b
LOP-37
LOP-46
LOP-38a
LOP-39
LOP-45
LOP-43
LOP-41
LOP-42
LOP-44
JAM-54
JAM-53
LOP-40

Fisherman Bay
Decatur Island
James Island State Park
Lopez Sound
Center Island
Dot Rock State Park
Lopez Island
Lopez Pass
Rosario Strait
Kings Point
Fortress Island
Hunter Bay
Crab Island
Davis Bay
Buck Island
Mud Bay
Shoal Bight
Point
Mackaye Harbor
Long Island
Barlow Bay
Hughes Bay
McArdle Bay
Watmough Bay
Iceberg Island State Marine Park
Aleck Bay
Iceberg Point
Middle Channel

SJI-N
SJI-O
SJI-P

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SUC-1	Field visit 10/97	Echo Bay (East side of Sucia Island) SNJ0976 48º-45.815'N 122º-54.400'W	Exclusion - Close off west end of Echo Bay.	2700'	Deploy boom across the west end of Echo Bay to protect the coves and sandy beaches. Rock anchors have been installed at the high and low tide lines on the north side of the bay. The anchors are on the east side of the rocky point that marks the east side of the entrance to the cove in the northwest corner of Echo Bay.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	State Park. Seabirds, archeological sites, sensitive bird nesting species, eelgrass beds, herring spawning, and seal haulouts.
SUC-2	Field visit 10/97	Fossil Bay (Southeast side of Sucia Island) SNJ0969 48º-44.885'N 122º-53.700'W	Exclusion - Close off entrance to bay.	1200'	Deploy boom across entrance to bay. Rock anchors have been installed at the high and low tide lines on the west side of the entrance.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	State Park. Seabirds, archeological sites, sensitive bird nesting species, eelgrass beds, herring spawning, and seal haulouts.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SUC-3a	Field visit 10/97	Mud Bay - Northwest Opening (Inside Fossil Bay) SNJ0970 48º-45.145'N 122º-54.115'W	Exclusion - Close off northwest entrance to bay.	400'	Deploy boom across northwest entrance to bay, from the dock on Sucia Island to Herndon Island.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	State Park. Seabirds, archeological sites, sensitive bird nesting species, eelgrass beds, herring spawning, and seal haulouts.
SUC-3b	Field visit 10/97	Mud Bay - Southeast Opening (Inside Fossil Bay) SNJ0968 48º-45.090'N 122º-53.950'W	Exclusion - Close off southeast entrance to bay.	300'	Deploy boom across southeast entrance to bay, from Herndon Island to Wiggins Head.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	State Park. Seabirds, archeological sites, sensitive bird nesting species, eelgrass beds, herring spawning, and seal haulouts.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SUC-4	New strategy 6/01	Fox Cove (Southwest corner of Sucia Island) SNJ0967 48º-45.170'N 122º-54.750'W	Exclusion - Close off entrance to cove.	1000'	Deploy boom across entrance to cove. Rock anchors have been installed at the high and low tide lines on the south side of the entrance. The high tide anchor is at the tip of the point, and the low tide anchor is NE of the high tide anchor.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	State Park. Seabirds, archeological sites, sensitive bird nesting species and seal haulouts.
SUC-5	Field visit 10/97	Shallow Bay (West side of Sucia Island) SNJ0963 48º-45.785'N 122º-55.175'W	Exclusion - Close off entrance to bay.	1200'	Deploy boom across entrance to Shallow Bay. Rock anchors have been installed at the high tide line on the north side of the entrance, and at the low tide line on the south side of the entrance.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	State Park. Seabirds, archeological sites, sensitive bird nesting species and seal haulouts.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
WAL-6	Field tested 4/99	Mail Bay (East side of Waldron Island) SNJ1028 48º-42.080'N 123º-0.410'W	Exclusion - Close off entrance to bay.	2000'	Deploy boom from the small rocky point south of the bay at an angle to the NE to the point between Otter Cove and Mail Bay.	Stage from Brandt's Marina next to the Orcas Island Airport (SNJ0924), the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.	Crabs and kelp beds, abalone, sea urchins, archaeological sites.
STU-7	Field tested 11/97	Prevost Harbor - West Entrance (North side of Stuart Island) SNJ1057 & SNJ1064 48º-41.180'N 123º-11.995'W	Exclusion - Keep oil out of harbor.	1600'	Deploy boom in a chevron configuration, from Charles Point to Satellite Island. The apex of the chevron can point to the north or south, depending on conditions and whichever is most feasible.	Stage from the Deer Harbor County dock (SNJ1196), Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. No vehicle access.	Baitfish, oysters, clam beaches and beds, dungeness crab, and State Park.
STU-8	Field tested 11/97	Prevost Harbor - East Entrance (North side of Stuart Island) SNJ1051 48º-40.600'N 123º-11.290'W	Exclusion - Keep oil out of harbor.	1200'	Deploy boom from the southern tip of Satellite Island to the closest point on Stuart Island. Use extreme caution, numerous unmarked shallow rock reefs.	Stage from the Deer Harbor County dock (SNJ1196), Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. No vehicle access.	Baitfish, oysters, clam beaches and beds, dungeness crab, and State Park.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
STU-9a	Field tested 11/97	Reid Harbor - West Entrance (South side of Stuart Island) SNJ1083 & SNJ1099 48º-39.675'N 123º-10.565'W	Exclusion - Keep oil out of harbor.	1800'	Deploy boom in a chevron configuration, from the west side of Gossip Island, west to Stuart Island. The apex of the chevron can point to the north or south, depending on conditions and whichever is most feasible.	Stage from the Deer Harbor County dock (SNJ1196), Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. No vehicle access.	Baitfish, oysters, clam beaches and beds, dungeness crab, and State Park.
STU-9b	Field tested 11/97	Reid Harbor - East Entrance (South side of Stuart Island) SNJ1099 48º-39.825'N 123º-10.305'W	Exclusion - Keep oil out of harbor.	300'	Deploy boom from the east side of Gossip Island, east to Stuart Island.	Stage from the Deer Harbor County dock (SNJ1196), Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. No vehicle access.	Baitfish, oysters, clam beaches and beds, dungeness crab, and State Park.
SJI-10	Field visit 4/99	Neil Bay - Inside Davison Head (North end of San Juan Island, northeast of Roche Harbor) SNJ0119 48º-37.310'N 123º-8.585'W	Exclusion - Keep oil out of Neil Bay.	1000'	Deploy boom from point on the south shore of the bay entrance across to the north shore.	Stage from Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the west end of the bay, from Friday Harbor ferry, go north on Roche Harbor Road.	Seabird concentrations, eelgrass beds, and sea urchins.
SJI-11	New strategy 9/01	UW Friday Harbor Marine Laboratories SNJ0072 48º-32.720'N 123º-0.735'W	Exclusion - Keep oil off shoreline and docks for lab.	800'	Deploy boom from points on each side of the dock and enclose the dock.	Stage from the laboratory parking lot, or from Friday Harbor Marina or Shipyard Cove Marina.	By boat from Friday Harbor or Anacortes. Vehicle access from Friday Harbor on the road to the Friday Harbor Labs.	University of Washington marine preserve.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SJI-12	Field visit 5/99	Beaverton Cove (Cove north of the Friday Harbor Marina and east of the Friday Harbor Labs) SNJ0071 48º-32.650'N 123º-0.985'W	Exclusion - Keep oil out of cove.	900'	Deploy boom across entrance to cove.	Stage from Friday Harbor Marina or Shipyard Cove Marina.	By boat from Friday Harbor or Anacortes. Vehicle access from Friday Harbor on the road to the Friday Harbor Labs.	University of Washington preserve in cove and some wildlife concentrations.
SJI-13	Field tested 1997	Argyle Lagoon - North Bay (East side of San Juan Island) SNJ0031 48º-31.160'N 123º-0.840'W	Exclusion - Keep oil out of lagoon.	500'	Deploy boom across outer lagoon entrance.	Stage at the boat ramp at the end of Jackson Beach Road, or from Friday Harbor or Anacortes.	By boat from Anacortes or Friday Harbor. Vehicle access from Friday Harbor on Argyle Ave to Pear Point Road to Jackson Beach Road.	Wetlands, UW lab, lagoon, bird and baitfish habitat, harbor seal haulout, sensitive nesting species, diving ducks, herons, loons, and geoducks.
SJI-14	Field tested 1997	Jakles Lagoon (South end of Griffin Bay, east side of San Juan Island) SNJ0015 48º-27.740'N 122º-59.350'W	Exclusion - Keep oil out of lagoon.	100'	Most of the year, a gravel bar across the entrance of the lagoon is too high for oil to enter the lagoon, but winter storms may form openings in the bar. Contact the National Park to determine status of opening. Place boom across opening, or block with logs, etc.	Stage from parking area above the lagoon, or from Friday Harbor or Anacortes.	By boat from Anacortes or Friday Harbor. Vehicle access from Friday Harbor on Argyle Ave to Cattle Point Road to a parking lot above the lagoon, must get permission from the National Park to take an all terrain vehicle down to lagoon.	Wetlands, bird and baitfish habitat, harbor seal haulouts, sensitive nesting species diving ducks, herons, loons.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SJI-15	Field tested 5/97	False Bay (Southwest side of San Juan Island) SNJ0292 48º-28.875'N 123º-4.295'W	Exclusion/ Collection - Keep oil out of bay or divert oil to collection point on beach where it can be recovered.	2300'	Deploy 2000' of boom at an angle across the entrance of the bay. May be possible to collect oil at a small pocket beach on the east side (SNJ0298). Use the remaining 300' of boom to direct the oil to the collection site.	Stage from parking area at head of bay, or from Friday Harbor or Anacortes.	By boat from Anacortes or Friday Harbor. Vehicle access to Kanaka Point (west side of bay) from False Bay Road to Bailer Hill Road to Kanaka Bay Road. Access to the beach on the east side from False Bay Road through the Mar Vista Resort (call for access 360-378-4448).	Shallow, rocky estuary, exposed mudflats at low tide - eagle nests in trees on bay shoreline, feeding shorebirds and waterfowl wintering area (fall though spring), dungeness crab, eelgrass, ulva, sand lance spawning, and sand shrimp.
SJI-16	New strategy 9/01	Smallpox Bay - County Park (Northwest side of San Juan Island) SNJ0261 48º-32.430'N 123º-9.655'W	Exclusion - Keep oil out of bay.	400'	Deploy boom across the entrance to the bay.	Stage from the county park parking lot, or from Friday Harbor, Roche Harbor, or Anacortes.	By boat from a small ramp at the county park, Friday Harbor, Roche Harbor, or Anacortes. Vehicle access from Friday Harbor ferry, go west on Beaverton Valley Road to West Valley Road to Mitchell Bay Road to West Side Road.	San Juan County Park, heavily used public recreational area; waterfowl concentrations.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SJI-17	Field tested 5/97	Mitchell Bay, outer entrance (Northwest side of San Juan Island) SNJ0181 48º-34.370'N 123º-10.145'W	Exclusion - Keep oil out of bay.	1600'	Deploy boom across the outer bay entrance. If conditions do not permit deployment as described, fall back into the bay and deploy 1000' of boom from the point on the north shore directly north of the marina to the south shore west of the marina.	Stage from the Mitchell Bay Marina, or from Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Mitchell Bay Marina (SNJ0192), from Friday Harbor ferry, go west on Beaverton Valley Road to West Valley Road to Mitchell Bay Road.	Waterfowl concentrations, baitfish, archeological sites, and dungeness crab.
SJI-18	Field tested 5/97	Mitchell Bay, entance to inner bay (NW side of San Juan Island) SNJ0182 48º-35.160'N 123º-9.860'W	Exclusion - Keep oil out of the inner bay.	500'	Deploy boom across the inner bay entrance. Angle boom to north shoreline on point for possible collection from private property.	Stage from the Mitchell Bay Marina, or from Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Mitchell Bay Marina (SNJ0192), from Friday Harbor ferry, go west on Beaverton Valley Road to West Valley Road to Mitchell Bay Road.	Waterfowl concentrations, baitfish, archeological sites, and dungeness crab. Mudflat and tidal marsh habitat.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SJI-19a	Field tested 9/98	Horseshoe Bay (Entrance to Westcott and Garrison Bays, NW corner of San Juan Island) SNJ0138 48º-35.385'N 123º-10.205'W	Deflection/ Collection - Keep oil out of Westcott and Garrison Bays.	2400'	Deploy boom in three chevrons with the apex pointing into Westcott Bay. Deploy the first chevron just inside the entrance using 400' on each leg with an apex angle of about 35 degrees. Deploy two similar chevrons further inside the entrance. Current through the entrance is strong during flood tide, but the first two chevrons will slow the oil enough so collection with a skimmer will be effective at the apex of the third chevron.	Stage from Friday Harbor, Roche Harbor, or Anacortes. Potential staging from Westcott Bay SeaFarm.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Westcott Bay SeaFarm dock (SNJ0154), from Friday Harbor ferry, go north on Roche Harbor Road.	Seabirds, waterfowl, seals, clam beds, dungeness crab, oysters, herring spawning, and archeological sites.
SJI-19b	Field tested 9/98	White Point (North side of entrance to Westcott and Garrison Bays) SNJ0138 48º-35.435'N 123º-10.280'W	Deflection - Deflect oil out into center of channel for collection at SJI-19a.	300'	Deploy boom from the end of White Point to deflect the oil out to the collection strategy.	Stage from Friday Harbor, Roche Harbor, or Anacortes. Potential staging from Westcott Bay SeaFarm.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Westcott Bay SeaFarm dock (SNJ0154), from Friday Harbor ferry, go north on Roche Harbor Road.	Westcott and Garrison Bays resources. Seabirds, waterfowl, seals, clam beds, dungeness crab, oysters, herring spawning, and archeological sites.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SJI-19c	Field tested 9/98	Delacombe Point (South side of entrance to Westcott and Garrison Bays) SNJ0175 48º-35.305'N 123º-10.230'W	Deflection - Deflect oil out into center of channel for collection at SJI-19a.	400'	Deploy boom from the end of Delacombe Point to deflect the oil out to the collection strategy.	Stage from Friday Harbor, Roche Harbor, or Anacortes. Potential staging from Westcott Bay SeaFarm.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Westcott Bay SeaFarm dock (SNJ0154), from Friday Harbor ferry, go north on Roche Harbor Road.	Westcott and Garrison Bays resources. Seabirds, waterfowl, seals, clam beds, dungeness crab, oysters, herring spawning, and archeological sites.
SJI-20	Field tested 9/98	Garrison Bay (NW side of San Juan Island) SNJ0159 (east side), SNJ0172 (west side) 48º-35.350'N 123º-9.090'W	Exclusion/ Deflection/ Collection - Keep oil out of bay.	1300'	Deploy boom in a chevron configuration at the entrance to the bay, from the west shore of Bell Point to the opposite shoreline to the west. Deploy with the apex pointing into Garrison Bay, and collect at the apex with a skimmer during flood tide.	Stage from Friday Harbor, Roche Harbor, or Anacortes. Potential staging from Westcott Bay SeaFarm.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Westcott Bay SeaFarm dock (SNJ0154), from Friday Harbor ferry, go north on Roche Harbor Road.	Garrison Bay resources. National Park (English Camp). Seabirds, waterfowl, seals, clam beds, dungeness crab, oysters, herring spawning, and archeological sites.
SJI-21	Field tested 9/98	Westcott Bay SNJ0141 (NW side of San Juan Island), SNJ0158 (SE side at Bell Point) 48º-35.735'N 123º-9.495'W	Exclusion/ Deflection/ Collection - Keep oil out of bay.	2300'	Deploy boom in a chevron configuration at the entrance to the bay from the north tip of Bell Point to the northeast shore of White Point. Deploy with the apex pointing into Westcott Bay, and collect at the apex with a skimmer during flood tide.	Stage from Friday Harbor, Roche Harbor, or Anacortes. Potential staging from Westcott Bay SeaFarm.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the Westcott Bay SeaFarm dock (SNJ0154), from Friday Harbor ferry, go north on Roche Harbor Road.	Westcott Bay resources. Seabirds, waterfowl, seals, clam beds, dungeness crab, oysters, herring spawning, and archeological sites.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SJI-22	Field visit 4/99	Roche Harbor (NW corner of San Juan Island) SNJ0130 48º-36.440'N 123º-9.315'W	Exclusion - Keep oil out of tidal marsh.	300'	Deploy boom across the entrance to the tidal marsh south of the Roche Harbor Marina.	Stage from the Roche Harbor Marina, or from the boat ramp parking lot on the east side of the marsh entrance.	By boat from Friday Harbor, Roche Harbor, or Anacortes. Vehicle access to the east side of the marsh, from Friday Harbor ferry, go north on Roche Harbor Road.	Herring spawning, marsh habitat, waterfowl.
HEN-23	Field tested 10/97	Nelson Bay (Henry Island, NW corner of San Juan Island) SNJ0206 48º-36.275'N 123º-10.705'W	Exclusion - Keep oil out of bay.	1400'	Deploy boom in a chevron configuration at the entrance to the bay.	Stage from Friday Harbor, Roche Harbor, or Anacortes.	By boat from Friday Harbor, Roche Harbor, or Anacortes. No vehicle access.	Wetlands, waterfowl habitat, baitfish, dungeness crab, and eelgrass beds.
JON-24	Field visit 8/01	Jones Island - North Side Cove (West of Orcas Island) SNJ1367 48º-37.130'N 123º-2.785'W	Exclusion - Keep oil out of the cove.	1000'	Deploy boom across the narrowest point of the entrance to the cove on the north side of the island. Attach boom to shore or trees, and anchor to maintain position.	Stage from Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. No vehicle access.	State Park public recreational area.
JON-25	Field visit 8/01	Jones Island - South Side Cove (West of Orcas Island) SNJ1372 48º-36.700'N 123º-2.715'W	Exclusion - Keep oil out of the cove.	1500'	Deploy boom to protect both small coves on the south side of the island. Very exposed. If unable to protect both coves, pull back and try to protect the cove to the west.	Stage from Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. No vehicle access.	State Park public recreational area.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
ORC-26	New strategy 9/01	Deer Harbor - Cove on the West side of the Harbor (Southwest side of Orcas Island) SNJ1189 48º-37.325'N 123º-0.405'W	Exclusion - Keep oil out of the cove.	500'	Deploy boom across the entrance to the cove.	Stage from the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. Vehicle access from Orcas Island ferry, go west and north from the ferry to the Horseshoe Highway, then go west on Deer Harbor Road to Deer Harbor.	Waterfowl concentrations, small stream at the head of the cove.
ORC-27	Field tested 11/97	Deer Harbor - Lagoon at far North end of the Harbor (Southwest side of Orcas Island) SNJ1190 48º-37.475'N 123º-0.235'W	Exclusion/ Collection - Keep oil out of inner harbor/ lagoon, collect with vac truck at road.	800'	Deploy boom from the west side of the harbor just south of the bridge at an angle to the southeast to the east side of the harbor. Collect oil with a vac truck from the road on the west side of the harbor.	Stage along road on west side of harbor, from the Deer Harbor County dock (SNJ1196), or from Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. Vehicle access from Orcas Island ferry, go west and north from the ferry to the Horseshoe Highway, then go west on Deer Harbor Road to Deer Harbor.	Dungeness crab, oysters, sea urchins, and mudflats.
ORC-28	Field tested 5/98	Buck Bay (Orcas Island, east side of East Sound) SNJ0829 48º-37.475'N 123º-0.235'W	Exclusion - Keep oil out of bay.	1400'	Deploy boom in a chevron configuration from the dock on the west side to the Johnston's property on the east side. This location keeps the boom in water even at low tide, most of bay becomes a mudflat at low tide. Be aware of two pinnacle rocks near the entrance of the bay.	Stage from the parking area at the dock in Olga, or from Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. Vehicle access from Orcas Island ferry, go west and north from the ferry to the Horseshoe Highway and follow to Olga and Buck Bay.	Dungeness crab, clam beds, and mudflat habitat.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SHA-29a	Field tested 9/99	Blind Bay - West Opening (North side of Shaw Island) SNJ0368 48º-35.085'N 122º-56.385'W	Exclusion - Keep oil out of bay.	1000'	Deploy boom from the west side of Blind Island to pilings at a dock on Shaw Island. Be aware of shallow rocks just north of the booming location (site of numerous groundings).	Stage from Bayhead Marina on Orcas Island just east of the ferry dock.	By boat from Friday Harbor or Anacortes. Vehicle access to the Shaw Island ferry terminal.	Seabirds, diving ducks, herring and smelt spawning, sandlance larvae, dungeness crab and sea urchins.
SHA-29b	Field tested 9/99	Blind Bay - East Opening (North side of Shaw Island) SNJ0358 48º-35.070'N 122º-56.035'W	Exclusion - Keep oil out of bay.	1800'	Deploy boom from a piling south and west of the Shaw Island Ferry Dock to the east side of Blind Island. Also run boom from piling to shore to close short gap. Boom can be deployed in a chevron configuration with the apex pointing into or out of the bay, depending on conditions and whichever is most feasible.	Stage from Bayhead Marina on Orcas Island just east of the ferry dock.	By boat from Friday Harbor or Anacortes. Vehicle access to the Shaw Island ferry terminal.	Seabirds, diving ducks, herring and smelt spawning, sandlance larvae, dungeness crab and sea urchins.
SHA-30	Field tested 9/99	Picnic Cove (Southeast side of Shaw Island) SNJ0345 48º-33.840'N 122º-55.280'W	Exclusion - Keep oil out of Picnic Cove.	1000'	Deploy boom across entrance to Picnic Cove, shoreline is private property.	Stage from the county park beach in Indian Cove, or Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes.	Archeological sites, dungeness crab.
SHA-31	Field tested 9/99	Indian Cove (Southeast side of Shaw Island) SNJ0336 48º-33.735'N 122º-56.265'W	Exclusion - Keep oil out of cove.	2000'	Deploy boom to protect the shoreline in the northwest corner of Indian Cove (South Beach area).	Stage from the county park beach in Indian Cove, or from Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. Vehicle access from the Shaw Island ferry terminal on Blind Bay Road to Squaw Bay Road.	Archeological sites, dungeness crab, Shaw County park.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SHA-32	Field tested 9/99	Squaw Bay (Southeast side of Shaw Island) SNJ0333 48º-33.480'N 122º-56.650'W	Exclusion/ Deflection/ Collection - Keep oil out of bay. Deflect oil to east shore for collection.	1000'	Deploy boom at an angle across the entrance to the bay from a sandy beach on the west side of the entrance, northeast to the east shore of the entrance. The boom on the east shore can be placed so it will deflect oil into a small cove on the east shore for collection with a skimmer.	Stage from the road at the head of the bay (SNJ0332), or Friday Harbor or Anacortes.	By boat from Friday Harbor or Anacortes. Vehicle access from the Shaw Island ferry terminal on Blind Bay Road to Squaw Bay Road.	Dungeness crab, oysters, archeological sites, shore birds, waterfowl, and tideflats.
SHA-33	Field tested 4/99	Parks Bay (Southwest side of Shaw Island) SNJ0403 48º-33.850'N 122º-59.070'W	Exclusion - Keep oil out of bay.	2000'	Deploy boom near outer entrance to Parks Bay from the small island at the north end of the bay to the north end of the Point George Peninsula. The pass on the north side of the island is open only on a very high tide, boom if necessary with 100'. Strong currents run north and south past the entrance to the bay, and currents moving in and out of the bay are gentle. Oil would tend to move past the bay, and would only be pushed into the bay by the wind.	Stage from Friday Harbor or Anacortes.	By boat from Friday Harbor, Anacortes or Bellingham.	Archeological sites, shorebirds, waterfowl, tidal flats, and dungeness crab.
LOP-34	Field visit 3/96	Shoal Bay Lagoon (Northeast side of Lopez Island) SNJ0559 48º-33.200'N 122º-52.370'W	Exclusion - Keep oil out of the lagoon at the southeast end of Shoal Bay.	100'	Deploy boom in front of the lagoon culvert. Blocking the culvert with boards, sandbags, etc. would be more effective.	Stage from Port Stanley Road, or at the gravel pit adjacent to the lagoon.	Vehicle access from the Lopez Island ferry terminal on Ferry Road to Port Stanley Road, or by boat from Friday Harbor or Anacortes.	Seabirds, diving ducks, herring, smelt, sandlance larvae, and dungeness crab.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-35	Field visit 3/96	Swift Bay Lagoon (Northeast side of Lopez Island) SNJ0546 48º-32.500'N 122º-52.440'W	Exclusion - Keep oil out of the lagoon at the south end of Swift Bay.	100'	Deploy boom in front of the lagoon culvert. Blocking the culvert with boards, sandbags, etc. would be more effective.	Stage from Port Stanley Road, or at the gravel pit adjacent to the lagoon.	Vehicle access from the Lopez Island ferry terminal on Ferry Road to Port Stanley Road, or by boat from Friday Harbor or Anacortes.	Seabirds, diving ducks, brant feeding area, and dungeness crab.
LOP-36	Field visit 3/96	Spencer Spit Lagoon (Northeast side of Lopez Island) SNJ0541 48º-32.245'N 122º-51.410'W	Exclusion - Keep oil out of the lagoon on Spencer Spit.	100'	Deploy boom in front of the lagoon entrance. Blocking the entrance with boards, sandbags, etc. would be more effective.	Stage near the lagoon on the Spencer Spit State Park access road.	Vehicle access from the Lopez Island ferry terminal on Ferry Road to Port Stanley Road to the Spencer Spit State Park, or by boat from Friday Harbor or Anacortes.	Seabirds, brant feeding area, clam beds, tidal marsh.
LOP-37	Field visit 7/99	Hunter Bay (Southeast side of Lopez Island) SNJ0502	Exclusion/ Collection - Keep oil out of bay. Use currents to aid in collection.	3500'	Deploy 2600' of boom from the north shore of the bay at 48º-27.795'N 122º-51.530'W (SNJ0507) to the south shore at 48º-27.570'N 122º-51.025'W (SNJ0503). Deploy an additional 900' of boom from the end of the boom on the south shore to the county dock (SNJ0502), running the boom parallel to the shoreline. Currents during flood tide will push oil to the dock for collection. Additional boom could be deployed north from the dock to improve collection efficiency.	Stage from the county dock at the southeast corner of Hunter Bay, or from Anacortes, Friday Harbor, or Skyline Marina.	By boat from the county dock and ramp, Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Islandale Road.	Seabirds, diving ducks, archaeological sites, smelt, herring, sandlance larvae, and dungeness crab.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-38a	Field tested 7/99	Mud Bay - From the West Shore to Crab Island (Southeast side of Lopez Island) SNJ0502 48º-27.650'N 122º-50.740'W	Exclusion - Keep oil out of the bay.	800'	Deploy boom from Crab Island to the county dock on the west shore. Oil moving past the county dock will be directed to the booms east of Crab Island for collection.	Stage from the county dock at the southeast corner of Hunter Bay, or from Anacortes, Friday Harbor, or Skyline Marina.	By boat from the county dock and ramp, Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Islandale Road.	Seabirds, diving ducks, archaeological sites, smelt, herring spawning, sand lance larvae, and dungeness crab.
LOP-38b	Field tested 7/99	Mud Bay - From Crab Island to Fortress Island (Southeast side of Lopez Island) SNJ0484 48º-27.810'N 122º-50.450'W	Exclusion - Keep oil out of the bay.	1800'	Deploy boom from Crab Island to Fortress Island in a chevron configuration with the apex pointed into Mud Bay. Rock anchors have been installed at the high and low tide lines on the southwest corner of Fortress Island, directly across from Crab Island. Oil moving past the county dock and Crab Island will be directed to this boom for collection with a skimmer. Current moving between the islands may be fairly strong.	Stage from the county dock at the southeast corner of Hunter Bay, or from Anacortes, Friday Harbor, or Skyline Marina.	By boat from the county dock and ramp, Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Islandale Road.	Seabirds, diving ducks, archaeological sites, smelt, herring spawning, sand lance larvae, and dungeness crab.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-38c	Field tested 7/99	Mud Bay - From Fortress Island to the Sperry Peninsula shore (Southeast side of Lopez Island) SNJ0485 48º-27.995'N 122º-50.090'W	Exclusion - Keep oil out of the bay.	1700'	Deploy boom from Fortress Island to the shore on the Sperry Peninsula. Oil entrained under the boom between Crab Island and Fortress Island may circle around the bay and move north to this boom.	Stage from the county dock at the southeast corner of Hunter Bay, or from Anacortes, Friday Harbor, or Skyline Marina.	By boat from the county dock and ramp, Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Islandale Road.	Seabirds, diving ducks, archaeological sites, surf smelt, herring spawning, sand lance larvae, and dungeness crab.
LOP-39	New strategy 8/01	Mud Bay - Backup for LOP-38 SNJ0496	Exclusion - Keep oil out of the bay.	2500'	Deploy boom from the north shore of the bay at 48º-27.050'N 122º-51.070'W (SNJ0498) to the south shore at 48º-26.920'N 122º-50.515'W (SNJ0494).	Stage from the county dock at the southeast corner of Hunter Bay, or from Anacortes, Friday Harbor, or Skyline Marina.	By boat from the county dock and ramp, Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Islandale Road.	Seabirds, diving ducks, archaeological sites, surf smelt, herring spawning, sand lance larvae, and dungeness crab.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-40	New strategy 8/01	Mud Bay - Backup for LOP-38 (Mud Bay side of Shoal Bight) SNJ0488 48º-27.705'N 122º-49.745'W	Exclusion - Keep oil out of the bay.	2100'	Deploy boom across the entrance to the cove to protect the lagoon and tidal marsh.	Stage from the county dock at the southeast corner of Hunter Bay, or from Anacortes, Friday Harbor, or Skyline Marina.	By boat from the county dock and ramp, Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Islandale Road.	Seabirds, diving ducks, archaeological sites, surf smelt, herring spawning, sand lance larvae, brant feeding area, tidal marsh, and dungeness crab.
LOP-41	Field tested 9/99	Watmough Bay (Southeast corner of Lopez Island in Rosario Straits) SNJ0456 48º-25.915'N 122º-48.710'W	Exclusion - Keep oil out of the bay.	1000'	Deploy boom across bay at a point about half way into the bay. Feasibility depends on the direction and speed of the wind. This site is usually protected and the boom is easy to set.	Stage from Anacortes, Skyline Marina, or Port Angeles.	By boat from Anacortes, Port Angeles, or Skyline Marina.	Nesting and foraging seabirds, foraging and resting habiat for marbled murrelets. Sensitive nesting species site at the head of the bay.
LOP-42	Field tested 9/99	McArdle Bay (South end of Lopez Island) SNJ0443 48º-25.600'N 122º-49.780'W	Exclusion/ Collection - Keep oil out of the bay, or use a a collection site.	1000'	Deploy boom across the entrance to the bay if conditions are favorable, site is exposed and often rough. Currents and wind tend to push oil into the bay. To use the bay for collection, deploy the boom out from each side of the entrance to enhance collection. Move boom across the entrance of the bay to keep the oil in the bay during ebb tide.	Stage from Anacortes, Skyline Marina, or Port Angeles.	By boat from Anacortes, Friday Harbor, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal to the beach at the head of Aleck Bay via private roads.	Nesting and foraging seabirds, foraging and resting habiat for marbled murrelets.

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Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-43	Field tested 9/99	Hughes Bay (South end of Lopez Island) SNJ0438 48º-25.730'N 122º-50.375'W	Exclusion/ Collection - Keep oil out of the bay, or use a a collection site.	1500'	Deploy boom across the entrance to the bay if conditions are favorable, site is exposed and often rough. With wind from the south or southwest, the boom can be deployed from the west side of the bay entrance to a point at the head of the bay to the north, which will protect most of the bay. Currents and wind tend to push oil into the bay. To use the bay for collection, deploy the boom out from each side of the entrance to enhance collection. Move boom across the entrance of the bay to keep the oil in the bay during ebb tide.	Stage from Anacortes, Skyline Marina, or Port Angeles.	By boat from Anacortes, Port Angeles, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal to the beach at the head of Aleck Bay via private roads.	Nesting and foraging seabirds, foraging and resting habiat for marbled murrelets.
LOP-44	Field tested 9/99	Aleck Bay (South end of Lopez Island) SNJ0429 48º-25.560'N 122º-51.090'W	Exclusion - Keep oil out of the bay.	1700'	Deploy boom across the narrowest point at the mouth of the bay. Aleck Bay is the least exposed of the three strategies in this area, and booming is achievable more often than for Hughes and McArdle Bays.	Stage from Anacortes, Skyline Marina, or Port Angeles.	By boat from Anacortes, Port Angeles, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal to the beach at the head of Aleck Bay via private roads.	Nesting seabirds, other marine bird species, sea urchins, archaeological sites.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-45	Field visit 4/99	Mackaye Harbor (Southwest corner of Lopez Island) SNJ0427	Exclusion/ Collection - Keep oil out of the inner harbor, collect oil at the beach on the south shore.	3500'	Deploy boom from the point west of Barlow Bay on the south shore of the harbor at about 48º-26.325'N 122º-52.730'W (SNJ0664) to the point on the north shore just east of Jones Bay at about 48º-26.765'N 122º-53.205'W (SNJ0652). Oil can be collected with a vac truck from the beach of the small cove west of Barlow Bay. If conditions do not permit deployment as described, fall back into the bay and deploy 1500' of boom across the entrance of Barlow Bay.	Stage from Mackaye Harbor Road, or from Anacortes, Skyline Marina, or Port Angeles.	By boat from Anacortes, Port Angeles, or Skyline Marina. Vehicle access from the Lopez Island ferry terminal on Ferry Road to Center Road to Mud Bay Road to Mackaye Harbor Road.	Nesting seabirds, sand lance, surf smelt, sea urchins, archaeological sites.
LOP-46	Field visit 4/99	Davis Bay - Southeast Side (Southwest corner of Lopez Island) SNJ0628 48º-27.260'N 122º-55.060'W	Exclusion - Keep oil out of the southeast side of the bay.	1500'	Deploy boom in a chevron configuration from the rocky point due east of Buck Island to the second rocky point to the north.	Stage from Anacortes, Skyline Marina, or Port Angeles.	By boat from Anacortes, Port Angeles, or Skyline Marina.	Nesting seabirds, other species, sea urchins, archaeological sites.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-47	Field tested 11/99	Fishermen's Bay - Outside entrance to bay (West side of Lopez Island) SNJ0585	Deflection/ Exclusion - Keep oil out of Fishermen's Bay.	2200'	Deploy boom in two cascading sections to deflect oil away from the bay entrance. For the first section, deploy 1000' of boom from a point on the shore north of the county access at about 48º-31.525'N 122º-5.980'W (SNJ0585) to the channel navigational marker (do not attach the boom to the marker). Deploy 1200' of boom for the second section from the navigation marker to the shore on the peninsula about 1500-1700 feet west from the entrance channel at 48º-31.310'N 122º-55.445'W (SNJ0603). Overlap the boom sections by about 100', with the first section on the outside. Double anchors should be used at the ends at the marker and at the mid-point of each boom. A sand auger anchor should be used for the beach on the peninsula. Getting the correct angle on the booms and anchoring them well is critical to the success of this strategy. Flood tide currents run from north to south along shore.	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

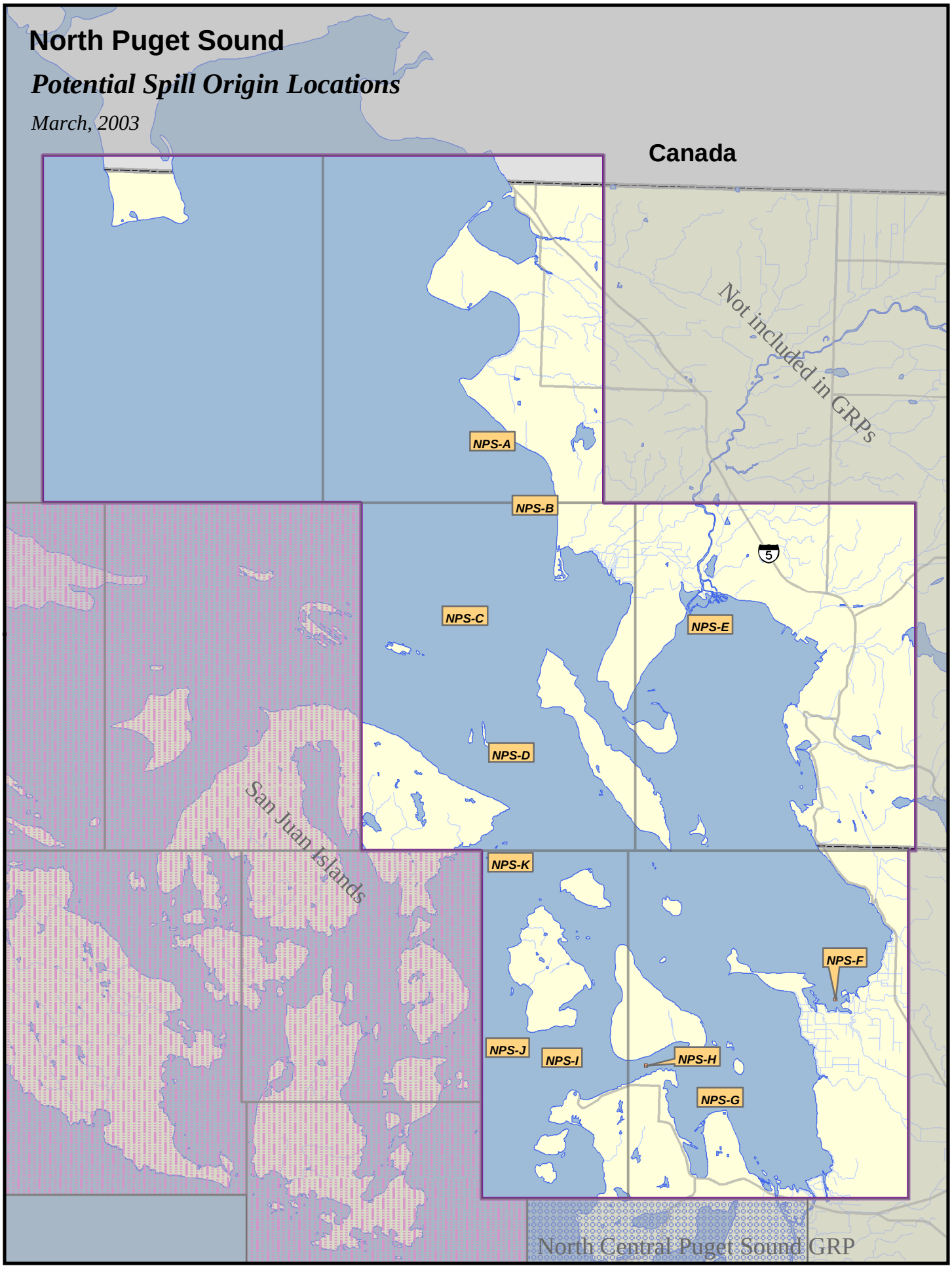
Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-48a	Field visit 11/99	Fishermen's Bay - East side of entrance channel (West side of Lopez Island) SNJ0586 48º-31.310'N 122º-55.000'W	Collection - Keep oil out of Fishermen's Bay.	100'	North - Deploy boom from the beach on the east side of the entrance channel near the county access (north of LOP-48b) to collect oil entering the bay on a flood tide. Current through the channel can be very strong.	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.
LOP-48b	Field visit 11/99	Fishermen's Bay - East side of entrance channel (West side of Lopez Island) SNJ0586 48º-31.290'N 122º-55.025'W	Collection - Keep oil out of Fishermen's Bay.	100'	South - Deploy boom from the beach on the east side of the entrance channel near the county access (south of LOP-48a) to collect oil entering the bay on a flood tide. Current through the channel can be very strong.	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.
LOP-49	Field tested 11/99	Fishermen's Bay - Small cove to the north on the west side of the entrance channel (West side of Lopez Island) SNJ0603 48º-31.220'N 122º-55.185'W	Exclusion - Keep oil out of the cove.	1000'	Necessary only if LOP-47 cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom across the mouth of the cove from north to south to keep oil out of the cove and to direct oil through the entrance channel for collection at LOP-51.	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LOP-50	Field visit 11/99	Fishermen's Bay - Small cove to the south on the west side of the entrance channel (West side of Lopez Island) SNJ0602 48º-31.080'N 122º-55.140'W	Exclusion - Keep oil out of the cove.	1000'	Necessary only if LOP-47 cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom across the mouth of the cove from northwest to southeast to keep oil out of the cove and to direct oil through the entrance channel for collection at LOP-51.	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.
LOP-51	Field visit 11/99	Fishermen's Bay - Collection inside bay (West side of Lopez Island) SNJ0588 48º-30.900'N 122º-54.770'W	Diversion/ Collection - Divert oil to a collection site on shore.	1000'	Necessary only if LOP-47 cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom from the boat ramp north of the Fisherman's Harbor Marina to the northwest to collect oil moving through the entrance channel. Deployment may be difficult if tidal currents are strong	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.
LOP-52	Field visit 11/99	Fishermen's Bay - Lagoon at the south end of the bay (West side of Lopez Island) SNJ0598 48º-30.460'N 122º-55.870'W	Exclusion - Keep oil out of the lagoon.	1000'	Deploy boom across the entrance to the lagoon. Access may be difficult, much of the entrance is a mudflat at low tide.	Stage from the County access sites or from the Fisherman's Bay marina and boat ramp.	By boat from Fisherman's Bay ramp, or from Friday Harbor, Anacortes or Bellingham.	Seabirds, diving ducks, and archeological sites.

4.3.1.2 Proposed Booming and Collection Strategies: Matrices - SAN JUAN ISLANDS

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
JAM-53	Field visit 8/01	James Island - West Side Cove (East of Decatur Island) SNJ0707 48º-30.700'N 122º-46.695'W	Exclusion - Keep oil out of the cove.	1400'	Deploy boom across the narrowest part of the entrance to the cove on the west side of the island, from the point at the south end, directly north to the point at the north end. Attach boom to the shore or trees, and anchor to maintain position.	Stage from Anacortes or Skyline Marina.	By boat from Anacortes or Skyline Marina. No vehicle access.	State Park public recreational area.
JAM-54	Field visit 8/01	James Island - East Side Cove (East of Decatur Island) SNJ0703 48º-30.795'N 122º-46.405'W	Exclusion - Keep oil out of the cove.	1000'	Deploy boom across the narrowest part of the entrance to the cove on the east side of the island, from the point at the south end, northwest to the shore at the north end. Attach boom to the shore or trees, and anchor to maintain position.	Stage from Anacortes or Skyline Marina.	By boat from Anacortes or Skyline Marina. No vehicle access.	State Park public recreational area.


North Puget Sound
Potential Spill Origin Locations
March, 2003
Canada
Not included in GRPs
NPS-A
NPS-B
NPS-C
NPS-D
NPS-E
NPS-F
NPS-G
NPS-H
NPS-I
NPS-J
NPS-K
5
San Juan Islands
North Central Puget Sound GRP

4.2.2.2 North Puget Sound Booming Strategy Priority Tables

Table 4-2-1

Potential Spill Origin: NPS-A - Cherry Point – BP Facility			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-16	4-57	Tide dependent
2	NPS-17	4-57	Tide dependent
3	NPS-11	4-56	
4	NPS-10	4-56	
5	NPS-9	4-56	
6	NPS-7	4-56	
7	NPS-8	4-56	
8	NPS-14	4-57	
9	NPS-15	4-57	
10	NPS-26	4-57	
11	NPS-18	4-57	
12	NPS-27	4-57	

Table 4-2-2

Potential Spill Origin: NPS-B Ferndale Refinery			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-16	4-57	Tide dependent
2	NPS-17	4-57	Tide dependent
3	NPS-12	4-56	
4	NPS-13	4-56	
5	NPS-14	4-57	
6	NPS-15	4-57	
7	NPS-26	4-57	
8	NPS-18	4-57	
9	NPS-27	4-57	
10	NPS-28	4-57	
11	NPS-29	4-57	
12	NPS-11	4-56	
13	NPS-10	4-56	
14	NPS-9	4-56	
15	NPS-23	4-57	
16	NPS-24	4-57	

Table 4-2-3

Potential Spill Origin: NPS- C North of Matia/Lummi Islands			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-23	4-57	
2	NPS-24	4-57	
3	NPS-76	4-60	
4	NPS-75	4-60	
5	NPS-16	4-57	
6	NPS-17	4-57	
7	NPS-26	4-57	
8	NPS-18	4-57	

Table 4-2-4

Potential Spill Origin: NPS-D Clark Island, SE corner			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-76	4-60	
2	NPS-23	4-57	
3	NPS-24	4-57	
4	NPS-25	4-57	
5	NPS-16	4-57	
6	NPS-17	4-57	
7	NPS-33	4-58	

Table 4-2-5

Potential Spill Origin: NPS-E Nooksack River mouth			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-34	4-58	
2	NPS-21	4-58	
3	NPS-22	4-58	
4	NPS-19	4-57	
5	NPS-28	4-57	
6	NPS-29	4-57	
7	NPS-20	4-58	
8	NPS-30	4-58	
9	NPS-31	4-58	
10	NPS-32	4-58	

Table 4-2-6

Potential Spill Origin: NPS-F Samish River mouth			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-46	4-59	
2	NPS-47	4-59	
3	NPS-48	4-59	
4	NPS-45	4-59	
5	NPS-44	4-59	

Table 4-2-7

Potential Spill Origin: NPS-G March Point Refineries			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-62	4-59	
2	NPS-61	4-59	
3	NPS-65	4-59	
4	NPS-66	4-59	
5	NPS-64	4-59	
6	NPS-63	4-59	
7	NPS-67	4-59	
8	NPS-68	4-59	
9	NPS-69	4-59	
10	NPS-70	4-59	
11	NPS-71	4-60	
12	NPS-72	4-60	
13	NPS-73	4-60	
14	NPS-74	4-60	
15	NPS-54	4-59	
16	NPS-53	4-59	
17	NPS-52	4-59	
18	NPS-51	4-59	
19	NPS-50	4-59	

Table 4-2-8

Potential Spill Origin: NPS-H Guemes Channel			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-65	4-59	
2	NPS-66	4-59	
3	NPS-64	4-59	
4	NPS-63	4-59	
5	NPS-68	4-59	
6	NPS-71	4-60	
7	NPS-72	4-60	
8	NPS-73	4-60	
9	NPS-62	4-59	
10	NPS-61	4-59	
11	NPS-70	4-59	
12	NPS-69	4-59	
13	NPS-74	4-60	
14	NPS-75	4-60	
15	NPS-76	4-60	

Table 4-2-9

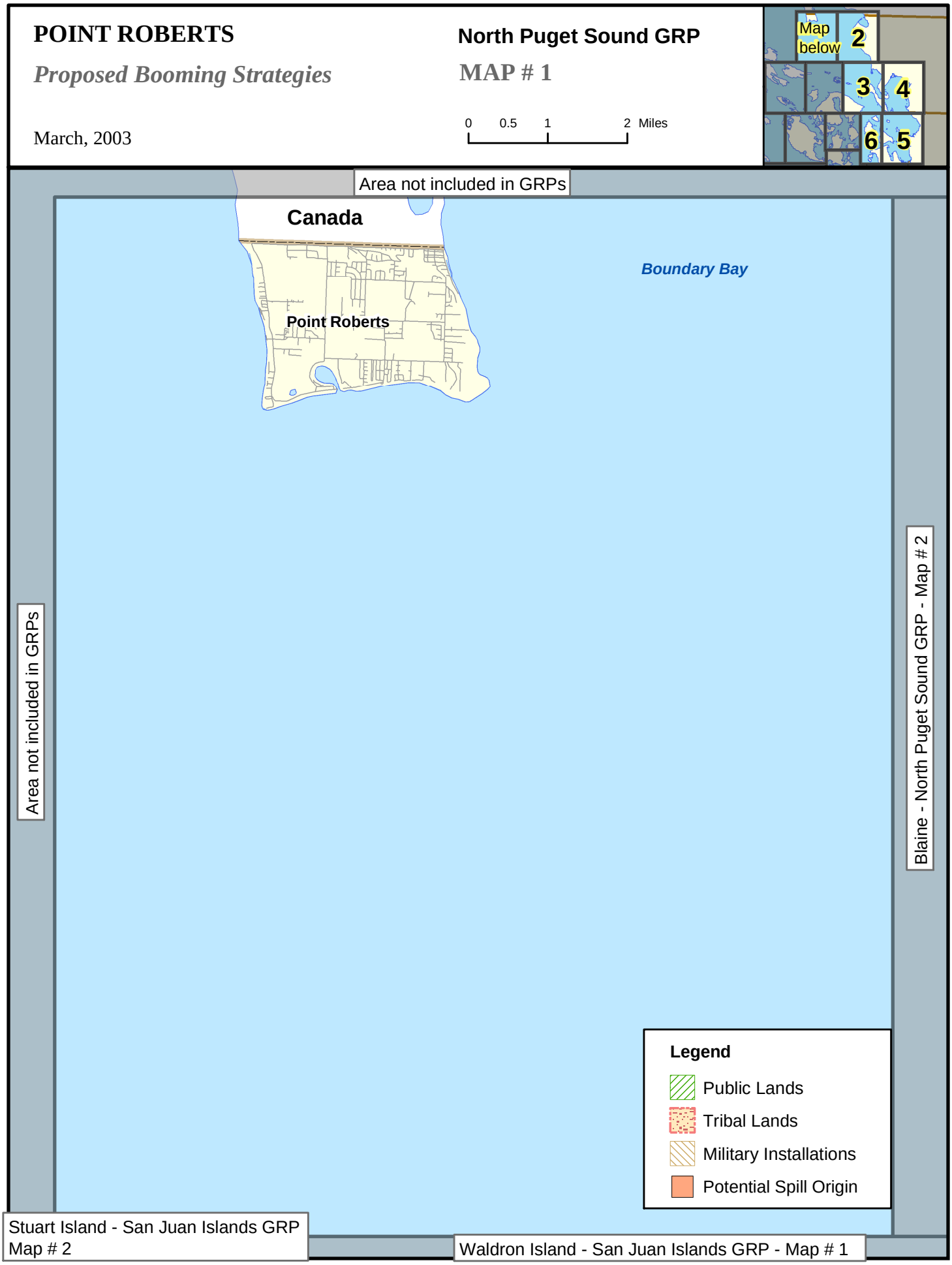
Potential Spill Origin: NPS-I Guemes Channel mouth			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NPS-72	4-60	
2	NPS-73	4-60	
3	NPS-71	4-60	
4	NPS-74	4-60	
5	NPS-75	4-60	
6	NPS-76	4-60	
7	NC-1	4-5	Refer to North Central Puget Sound GRP for NC strategies
8	NC-2	4-5	
9	NC-3	4-5	
10	NC-4	4-5	
11	NPS-70	4-59	
12	NPS-69	4-59	
13	NPS-33	4-58	
14	NPS-54	4-59	
15	NPS-53	4-59	

Table 4-2-10

Potential Spill Origin: NPS-J - James Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
FALL AND WINTER			
1	JAM-54	4-19	Refer to San Juan Islands GRP for JAM and LOP strategies
2	JAM-53	4-19	
3	LOP-41	4-20	
4	NPS-72	4-60	
5	NPS-73	4-60	
6	NPS-74	4-60	
7	LOP-42	4-20	
8	LOP-43	4-20	
9	LOP-44	4-20	
SPRING AND SUMMER			
1	JAM-54	4-19	Refer to San Juan Islands GRP for JAM and LOP strategies
2	JAM-53	4-19	
3	NPS-72	4-60	
4	NPS-73	4-60	
5	NPS-74	4-60	
6	NC-1	4-5	Refer to North Central Puget Sound GRP for NC strategies
7	NC-2	4-5	
8	NC-3	4-5	
9	NC-4	4-5	
10	NPS-76	4-60	
11	NPS-75	4-60	
12	LOP-36	4-19	

Table 4-2-11

Potential Spill Origin: NPS-K Cypress Island, NW corner			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	JAM-54	4-19	Refer to San Juan Islands GRP for JAM and ORC strategies
2	JAM-53	4-19	
3	ORC-28	4-19	
4	NPS-23	4-57	
5	NPS-24	4-57	
6	NPS-75	4-60	
7	NPS-76	4-60	


POINT ROBERTS
Proposed Booming Strategies
March, 2003
North Puget Sound GRP
MAP # 1
0 0.5 1 2 Miles
Map below
2
3
4
6
5
Area not included in GRPs
Canada
Point Roberts
Boundary Bay
Area not included in GRPs
Blaine - North Puget Sound GRP - Map # 2
Legend
Public Lands
Tribal Lands
Military Installations
Potential Spill Origin
Stuart Island - San Juan Islands GRP Map # 2
Waldron Island - San Juan Islands GRP - Map # 1

BLAINE

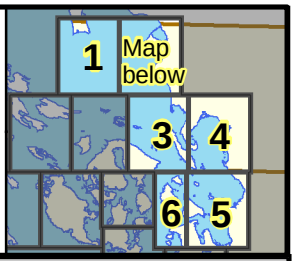
Proposed Booming Strategies

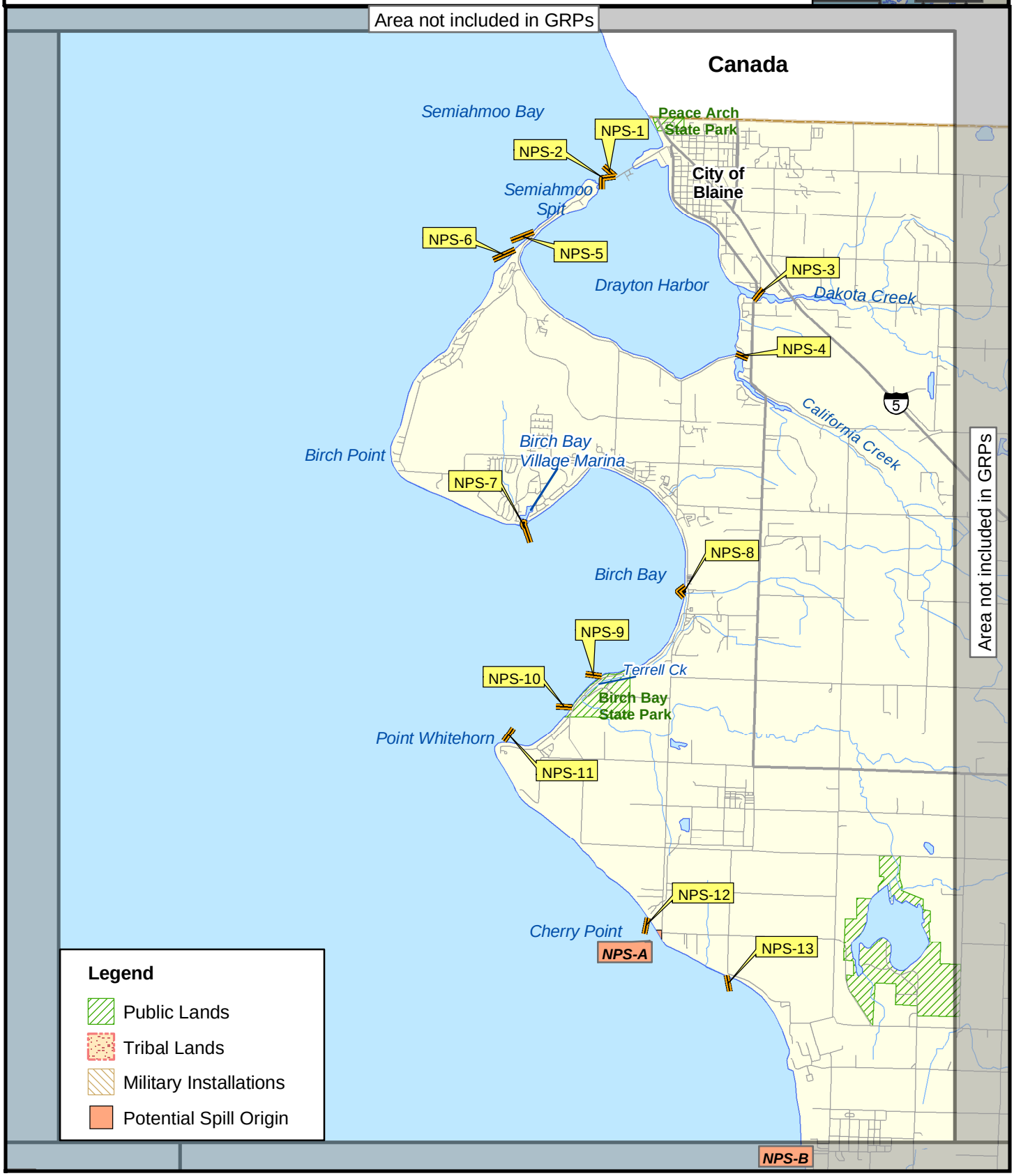
March, 2003

North Puget Sound GRP

MAP # 2

0 0.5 1 2 Miles





LUMMI BAY

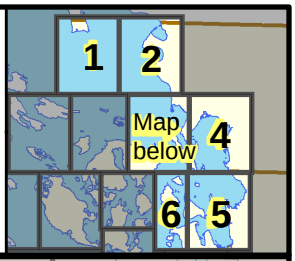
Proposed Booming Strategies

March, 2003

North Puget Sound GRP

MAP # 3

0 0.5 1 2 Miles



Blaine - North Puget Sound GRP - Map # 2

Waldron Island - San Juan Islands GRP - Map # 1

Bellingham Bay - North Puget Sound GRP - Map # 4

N Lopez Island - San Juan Islands GRP - Map # 5

Fidalgo Head - North Puget Sound GRP - Map # 6

NPS-B
Neptune Beach
NPS-14
Lummi River
NPS-16
NPS-15
Lummi Flats
Sandy Point
Seapond
Lummi Bay
NPS-17
NPS-C
Matia Island State Park
NPS-25
Point Migley
Lummi Indian Reservation
NPS-18
Lummi Point
Gooseberry Point
NPS-26
Ferry Route
NPS-24
NPS-27
Hale Passage
Village Point
Legoe Bay
Portage Point
NPS-19
NPS-23
NPS-29
NPS-28
Barnes Island
Clark Island State Park
Sunrise Cove
Echo Point
NPS-D
Lummi Island
Moran State Park
Lawrence Point
Orcas Island
Doe Bay

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

BELLINGHAM BAY

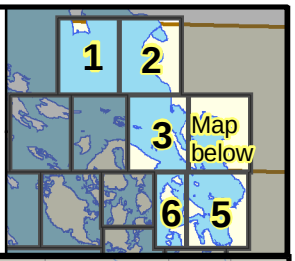
Proposed Booming Strategies

March, 2003

North Puget Sound GRP

MAP # 4

0 0.5 1 2 Miles



PADILLA BAY

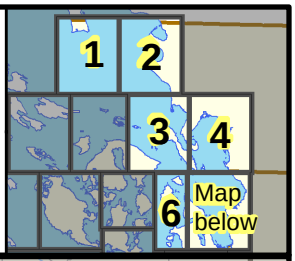
Proposed Booming Strategies

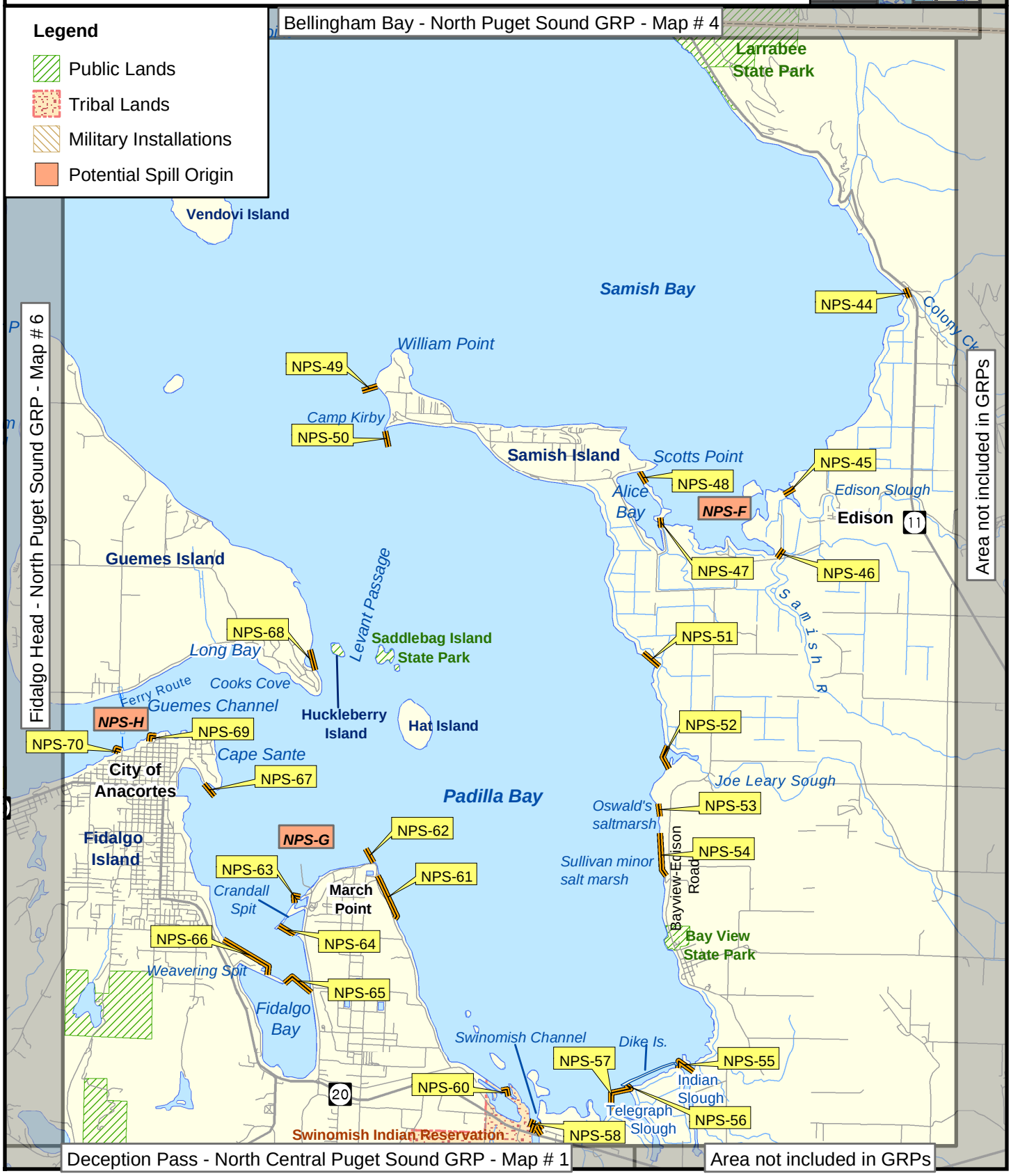
March, 2003

North Puget Sound GRP

MAP # 5

0 0.5 1 2 Miles





FIDALGO HEAD

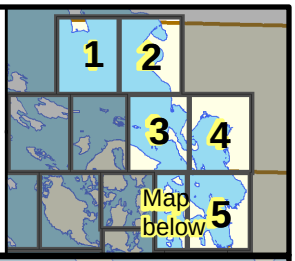
Proposed Booming Strategies

March, 2003

North Puget Sound GRP

MAP # 6

0 0.5 1 2 Miles



Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Lummi Bay - North Puget Sound GRP - Map # 3

Deception Pass - North Central Puget Sound GRP - Map # 1

North Lopez Island - San Juan Islands GRP - Map # 5

Padilla Bay - North Puget Sound GRP - Map # 5

South Lopez Island - San Juan Islands GRP - Map # 6

NPS-K
SJI-L
NPS-J
NPS-I
NPS-H
SJI-N
NPS-76
NPS-75
NPS-72
NPS-71
NPS-73
NPS-74
NPS-70
NPS-69
NPS-68
NPS-67
NPS-66
NPS-63
JAM-54
JAM-53
LOP-40
20

Sinclair Island
Vendovi Island
Obstruction Island
Cone Islands State Park
Eagle Harbor
Clark Point
Bellingham Channel
Cypress Island
Secret Harbor
Blakely Island
Reef Point
Rosario Strait
Thatcher Pass
Ferry Route
Guemes Island
Long Bay
Cooks Cove
Guemes Channel
Cape Sante
City of Anacortes
Fidalgo Island
Crandall Spit
Weavering Spit
Fidalgo Bay
Decatur Island
James Island State Park
Dot Rock State Park
Center Island
Lopez Pass
Shoal Bight
Shannon Point
Sunset Beach
Ship Harbor
Washington Park
Fidalgo Head
Flounder Bay
Burrows Pass
Burrows Island
Burrows Island Lighthouse
Burrows Bay
Allan Island
Carter Point

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-1	Field visit 4/00	Drayton Harbor Entrance WHA0038 48º-59.525'N 122º-45.980'W	Collection - Keep oil off shoreline.	1000'	Deploy boom at an angle out from the Blaine small boat harbor breakwater to collect oil moving along the shore from the south.	Stage at Blaine Marina.	Boat access from Blaine or Semiahmoo Marina. Vehicle access from I-5 exit 276, go west on Marine Drive to marina, vac truck access on end of breakwater.	Extensive bird habitat (diving ducks, cormorants, loons), eelgrass, sand lance larvae spawning, herring and smelt spawning. Cancer crab, clam beds and seal haulouts.
NPS-2	Field visit 4/00	Drayton Harbor Entrance WHA0038 WHA0097 48º-59.476'N 122º-46.296'W	Exclusion/ Diversion/ Collection - Keep oil out of Drayton Harbor.	1600'	Deploy boom in a chevron formation out from the point next to the Semiahmoo Marina across to the Blaine small boat harbor breakwater. Collect at each end.	Stage at Blaine or Semiahmoo Marina.	Boat access from Blaine or Semiahmoo Marina. Vac truck access on either side.	Extensive bird habitat (diving ducks, cormorants, loons), eelgrass, sand lance larvae spawning, herring and smelt spawning. Cancer crab, clam beds and seal haulouts.
NPS-3		Dakota Creek WHA0047 48º-58.217'N 122º-43.735'W	Exclusion - Keep oil from moving up creek.	500'	Deploy boom at an angle across the creek on the east side of the bridge on Blaine Road. A small workboat will be needed to place the boom.	Stage along the side of the road at the bridge.	Boat access from Blaine or Semiahmoo Marina. Vehicle access from I-5 exit 274, go east on Blaine Road to site.	Archeological Site, eelgrass, herring spawning, salmonids, cancer crabs, shorebirds and seabirds.
NPS-4	Field visit 4/00	California Creek WHA0062 48º-57.725'N 122º-43.975'W	Exclusion/ Collection - Keep oil from moving up creek.	300'	Deploy boom at an angle across creek under the bridge on Drayton Harbor Road to collect on the southeast side of bridge. A small workboat will be needed to deploy boom.	Stage from road at bridge.	Boat access from Blaine or Semiahmoo Marina. Vehicle access from I-5 exit 274, go east and south on Blaine Road to Drayton Harbor Road, vac truck access from Drayton Harbor Road.	Archaeological sites, eelgrass, herring spawning, salmonids, cancer crabs, shorebirds, seabirds.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-5	Field visit 10/00	Semiahmoo Spit WHA0101 48º-58.930'N 122º-47.220'W	Collection - Protect shoreline habitat and keep oil out of Drayton Harbor.	1500'	Deploy boom at an angle out from beach about 1/4 mile north of Semiahmoo Park and anchor to collect oil moving around Birch Point into bay. Area subject to extreme adverse weather from northwest, deploy as much boom as possible. Area is shallow and becomes a mudflat at low tide.	Stage at Semiahmoo Park parking lot.	Boat access from Blaine or Semiahmoo Marina. Vehicle access from I-5 exit 274, go east and south on Blaine Road to Drayton Harbor Road, vac truck access at park.	Archeological site (middens & burial), clam beds, eelgrass, sand lance, smelt, herring spawning, waterfowl concentrations.
NPS-6	Field visit 10/00	Semiahmoo Spit WHA0102 48º-58.750'N 122º-47.450'W	Collection - Protect shoreline habitat and keep oil out of Drayton Harbor.	1500'	Deploy boom at an angle out from beach at Semiahmoo Park and anchor to collect oil moving around Birch Point into bay. Area subject to extreme adverse weather from northwest, deploy as much boom as possible.	Stage at Semiahmoo Park parking lot.	Boat access from Blaine or Semiahmoo Marina. Vehicle access from I-5 exit 274, go east and south on Blaine Road to Drayton Harbor Road, vac truck access at park.	Archeological site (middens & burial), clam beds, eelgrass, sand lance, smelt, herring spawning, waterfowl concentrations.
NPS-7	Field tested 10/00	Birch Bay Village Marina WHA0122 48º-55.920'N 122º-47.230'W	Exclusion/ Diversion/ Collection - Keep oil out of Birch Bay, or keep oil off shoreline on Birch Point.	2000'	Deploy 1000' of boom at an angle from the east side of the harbor entrance to collect oil moving into the bay from the southwest, or deploy the boom from the west side of the harbor entrance to collect oil moving around the bay from the east. Loop up to 1000' of boom inside the harbor entrance and anchor to shore on each side to contain collected oil and direct oil to vac truck access on east side.	Stage at the Birch Bay Village Marina.	Boat access from the Birch Bay Village Marina. Vehicle access from I-5 exit 270, go west to Birch Bay Drive and north to Birch Point Road. Vac truck access from marina parking lot. Gated entrance from Birch Point Road to Birch Bay Village, ask guard for directions to marina.	.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-8	Field tested 10/00	Terrell Creek WHA0135 48º-55.300'N 122º-44.725'W	Exclusion - Keep oil out of creek.	300'	Deploy boom at angle across creek mouth. Can be deployed from land.	Stage along Birch Bay Drive, next to creek mouth.	By boat from Tosco or BP docks. Vehicle access from Birch Bay Drive.	State Park - archaeological sites, eelgrass, herring spawning, major waterfowl site.
NPS-9	Field visit 10/00	Birch Bay State Park WHA0141 48º-54.410'N 122º-45.975'W	Diversion/ Collection - Protect shoreline habitat and state park area.	1000'	Deploy boom at an angle out from beach at state park to collect oil moving around Pt. Whitehorn past NPS-10 and NPS-11.	Stage at Birch Bay State Park.	By boat from Birch Bay Village Marina or ramp at state park. Vehicle access from I-5 exits 266 or 270, go west to Birch Bay Drive, vac truck assess from Birch Bay Drive.	State park, archeological sites, eelgrass, and herring spawning and major waterfowl site.
NPS-10	Field visit 10/00	Point Whitehorn (inside Birch Bay) WHA0143 48º-54.090'N 122º-46.420'W	Collection - Keep oil out of inner Birch Bay.	1000'	Deploy boom at an angle out from beach at state park boat ramp to collect oil moving around Pt. Whitehorn past NPS-11.	Stage at Birch Bay State Park.	By boat from Birch Bay Village Marina or ramp at state park. Vehicle access from I-5 exits 266 or 270, go west to Birch Bay Drive, vac truck assess at boat ramp, off Birch Bay Drive.	State park, archeological sites, eelgrass, and herring spawning and major waterfowl site.
NPS-11	Field tested 10/00	Point Whitehorn (inside Birch Bay) WHA0146 48º-53.700'N 122º-47.385'W	Diversion - Divert oil out into deeper water for collection at NPS-9 and NPS-10.	1000'	Deploy boom at an angle out from beach to deflect oil moving around Pt. Whitehorn into bay. If possible, set up skimmer at end of boom to collect.	Stage at Birch Bay State Park.	By boat from Birch Bay Village Marina. No vehicle access.	State park, archeological sites, eelgrass, and herring spawning and major waterfowl site.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-12	New strategy 5/01	Cherry Point, at the BP Pier WHA0161 48º-51.950'N 122º-45.160'W	Collection - Prevent oil from moving up beach.	1000'	Deploy boom from beach outward at an angle to collect oil moving along beach, primarily for oil from the south. Area subject to extreme adverse weather that may prevent deployment of boom.	Stage at BP pier.	By boat from BP pier. Vac truck access to beach at boat ramp at base of pier.	
NPS-13	Field tested 3/99	End of Gulf Road WHA0166 48º-51.380'N 122º-43.915'W	Collection - Prevent oil from moving up beach.	1000'	Deploy boom from beach outward at an angle to collect oil moving along beach. Area is a natural collection point, primarily for oil from the south. Area subject to extreme adverse weather that may prevent deployment of boom.	Stage at BP or Tosco piers.	By boat from BP or Tosco piers. Vehicle access from I-5 exit 266, go west on Grandview Road to Kickerville Road, go south to Alder Grove Road, go west to Powder Plant Road, and south to Gulf Road,vac truck access to beach from Gulf Road.	Herring Spawning area, sandlance larvae, smelt spawning and eelgrass.
NPS-14	Field visit 3/99	Neptune Beach WHA0179 48º-48.960'N 122º-42.515'W	Deflection/ Collection - Deflect oil out into open water or collect on beach.	3000'	If winds are from the east or south, deploy boom in three 1000' overlapping legs 100-200' apart to deflect oil out into open water for collection with skimmers. If winds are from the west or northwest, deploy 1000' of boom at an angle to collect oil moving along the beach.	Stage at BP or Tosco piers.	By boat from BP or Tosco piers, or from Bellingham or Sandy Point Marina. Vehicle access from I-5 exit 260, go west on Slater Road, vac truck access to beach from South Beach Way.	Archeology, eelgrass, herring spawning, sand lance larvae.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-15	Field visit 6/99	Sandy Point WHA0187 48º-47.215'N 122º-42.640'W	Deflection - Deflect oil out into open water.	1000'	Deploy boom from north shore of Sandy Point Shores Marina entrance out into straits and anchor to deflect oil into open water for collection with skimmers.	Stage at BP or Tosco piers, or at Sandy Point Marina.	By boat from BP or Tosco piers, or from Bellingham or Sandy Point Marina. No vehicle access.	Marina, marsh, eelgrass, waterfowl, herring spawning, sand lance larvae, cancer crab.
NPS-16	Field tested 8/99	Lummi Bay WHA0190 WHA0209 48º-47.245'N 122º-41.455'W	Exclusion - Prevent oil from entering north bay.	4500'	Deploy boom from Sandy Point to the seapond dike in Lummi Bay and anchor well. Area is shallow and becomes a mudflat at low tide. Strong winds may prevent deployment of boom.	Stage at Tosco or BP Pier at Cherry Point or CSCI moorage in Anacortes or Bellingham.	By boat from BP or Tosco piers, or from Bellingham, Anacortes, or Sandy Point Marina. Vehicle access to seapond dike road from Haxton Way.	Eelgrass, waterfowl, shorebirds, aquaculture, clam and oyster beds, cancer crabs and herring spawning.
NPS-17		Lummi Bay WHA0217 48º-46.215'N 122º-39.315'W	Exclusion - Prevent oil from entering east bay.	2000'	Deploy boom from seapond dike to shoreline to the south. Area is shallow and becomes a mudflat at low tide.	Stage at Tosco or BP Pier at Cherry Point or CSCI moorage in Anacortes or Bellingham.	By boat from BP or Tosco piers, or from Bellingham, Anacortes, or Sandy Point Marina. Vehicle access to seapond dike road from Haxton Way.	Eelgrass, waterfowl, shorebirds, aquaculture, clam and oyster beds, cancer crabs and herring spawning.
NPS-18		Gooseberry Point WHA0230 48º-43.920'N 122º-40.320'W	Diversion/ Collection - Keep oil from moving up or down Hale Passage.	1500'	Deploy boom from beach west of Lummi ferry terminal. If oil is from the north, use as diversion. If oil is from the south, use as collection. Notify Lummi Ferry terminal.	Stage at ferry terminal at Gooseberry Point.	By boat from Bellingham or Anacortes. Vehicle access, from I-5 exit 260, take Slater Road west to Haxton Way to ferry terminal.	Eelgrass beds, herring spawning, seabirds, archeology sites, clam beds.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-19	Field visit 4/00	Portage Spit WHA0351 48º-42.815'N 122º-39.175'W	Exclusion - Keep oil out of Portage Bay.	1500'	Deploy boom from Portage Point to Portage Island on the Hale Passage side of Portage Spit in a chevron formation. Water flow across the spit is primarily from Portage Bay to Hale Passage.	Stage at ferry terminal at Gooseberry Point.	By boat from Bellingham or Anacortes. Vehicle access, from I-5 exit 260, take Slater Road west to Haxton Way to Lummi View Drive.	Shellfish, clambeds, herring spawning grounds, Western Grebe, waterfowl and shorebird concentrations and eelgrass.
NPS-20	Field visit 4/00	Point Francis (Southwest corner of Portage Island) WHA0359 48º-41.695'N 122º-37.465'W	Diversion - Keep oil from moving up or down Hale Passage.	1000'	Deploy boom at an angle out from the southwest corner of Portage Island to deflect the oil out into Hale Passage.	Stage at ferry terminal at Gooseberry Point, or Bellingham Marina.	By boat from Bellingham or Anacortes. No vehicle access.	Eelgrass beds, herring spawning, clam beds, cancer crabs.
NPS-21		Portage Bay, (Hermosa Beach to Brant Island) WHA0368 48º-43.880'N 122º-37.900'W	Exclusion /Collection - Prevent oil from entering Portage Bay.	3000'	Deploy boom in chevron configuration from Hermosa Beach to Brant Island. Can collect with a vac truck at Hermosa Beach from Lummi Shore Road. Area is shallow and becomes a mudflat at low tide.	Stage at ferry terminal at Gooseberry Point, or Bellingham Marina.	By boat from Bellingham or Anacortes. Vehicle access, from I-5 exit 260, take Slater Road west to Haxton Way to Lummi Shore Drive.	Shellfish, clam beds, herring spawning grounds, western grebe, waterfowl & shorebird conc., eelgrass.
NPS-22		Portage Bay, (Brant Island to Brant Point) WHA0368 48º-43.450'N 122º-37.380'W	Exclusion - Prevent oil from entering Portage Bay.	3000'	Deploy boom in chevron configuration from Brant Island to Brant Point. Area is shallow and becomes a mudflat at low tide.	Stage at ferry terminal at Gooseberry Point, or Bellingham Marina.	By boat from Bellingham or Anacortes. Vehicle access, from I-5 exit 260, take Slater Road west to Haxton Way to Lummi Shore Drive.	Shellfish, clam beds, herring spawning grounds, western grebe, waterfowl & shorebird conc., eelgrass.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-23	New strategy 5/01	Legoe Bay (West side of Lummi Island) WHA0253 48º-42.935'N 122º-42.045'W	Exclusion - Keep oil out of Legoe Bay.	1200'	Deploy boom from Lovers Bluff to north shoreline of Legoe Bay. Deploy only if oil is coming from the south and outer Legoe Bay is being used to collect oil from the Village Point strategy.	Stage from Sandy Point Marina or Lummi Island ferry terminal.	By boat from Sandy Point Marina, Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving to Village Point on Legoe Bay Road.	
NPS-24	Field visit 3/99	Village Point (West side of Lummi Island) WHA0248 48º-43.005'N 122º-43.130'W	Collection - Keep oil from moving further up or down the straits.	1000'	Deploy boom from beach on Village Point out into straits and anchor. Boom could be tended with a vessel at tide changes to reposition angles. Oil can be collected from either direction.	Stage from Sandy Point Marina or Lummi Island ferry terminal.	By boat from Sandy Point Marina, Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving to Village Point on Legoe Bay Road.	Eelgrass, herring spawning, sand lance larvae.
NPS-25	New strategy 5/01	Point Megley (North tip of Lummi Island) WHA0238 48º-44.935'N 122º-42.955'W	Diversion/ Deflection - Keep oil off point and deflect oil back into open water.	1500'	Deploy boom from beach on Point Megley out into straits and anchor. Boom could be tended with a vessel at tide changes to reposition angles.	Stage from Sandy Point Marina or Lummi Island ferry terminal.	By boat from Sandy Point Marina, Bellingham, or Anacortes. No vehicle access.	Eelgrass, herring spawning, clam beds, seabirds, Murrelets, Pigeon Guilliomonts and Grebes.
NPS-26	Field visit 4/00	Lummi Point (East side of Lummi Island) WHA0231 48º-44.070'N 122º-41.350'W	Diversion/ Collection - Keep oil from moving up or down Hale Passage.	1000'	Deploy boom from beach on Lummi Point out into Hale Passage and anchor. Boom could be tended with a vessel at tide changes to reposition angles.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving north on Nugent Road.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-27	Field visit 4/00	Lummi Island Ferry (Lummi Island side) WHA0338 48º-43.180'N 122º-40.845'W	Diversion/ Collection - Keep oil from moving up or down Hale Passage.	1000'	Deploy boom from beach south of the ferry terminal out into Hale Passage and anchor. Boom could be tended with a vessel at tide changes to reposition angles.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes, vehicle access by ferry.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.
NPS-28	Field visit 4/00	Sunrise Cove (East side of Lummi Island) WHA0329 48º-41.905'N 122º-39.800'W	Exclusion - Keep oil out of Sunrise Cove.	1200'	Secure boom to shore at an angle across bay.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving south on Nugent Road and east on Sunrise Road. Beach access through private property.	Eelgrass, clambeds and herring spawning grounds, Geoducks.
NPS-29	Field visit 4/00	Echo Point (East side of Lummi Island) WHA0328 48º-41.850'N 122º-39.580'W	Diversion/ Collection - Keep oil from moving up or down Hale Passage.	1000'	Deploy boom from beach on Echo Point out into Hale Passage and anchor. Boom could be tended with a vessel at tide changes to reposition angles.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving south on Nugent Road and east on Sunrise Road. Beach access through private property.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-30	Field visit 4/00	Lummi Island Gravel Pit WHA0318 48º-40.785'N 122º-37.820'W	Diversion/ Collection - Keep oil from moving up or down Hale Passage.	1000'	Deploy boom from beach and pilings at gravel pit out into Hale Passage and anchor. Boom could be tended with a vessel at tide changes to reposition angles.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving south on Nugent Road, east on Sunrise Road, and south on Seacrest Road. Beach access through private property.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.
NPS-31	New strategy 5/01	Smugglers Cove (East side of Lummi Island) WHA0317 48º-40.770'N 122º-37.730'W	Exclusion - Keep oil out of Smugglers Cove.	600'	Secure boom to shore across cove south of gravel pit.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving south on Nugent Road, east on Sunrise Road, and south on Seacrest Road. Beach access through private property.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.
NPS-32	New strategy 5/01	Inati Bay (East side of Lummi Island) WHA0314 48º-40.370'N 122º-37.345'W	Exclusion - Keep oil out of Inati Bay.	1000'	Secure boom to shore at an angle across bay entrance.	Stage at ferry terminal at Gooseberry Point, or at ferry terminal on Lummi Island.	By boat from Bellingham or Anacortes. No vehicle access.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-33	New strategy 5/01	Cove on West side of Eliza Island WHA0293 48º-38.910'N 122º-35.040'W	Exclusion - Keep oil out of Cove.	1500'	Deploy boom from beach near the south end of the grass airstrip, south to the beach on the south end of the island.	Stage at ferry terminal at Gooseberry Point, or at the Bellingham Marina.	By boat from Bellingham or Anacortes. No vehicle access.	Eelgrass, herring spawning, clam beds, cancer crab, seabirds, murrelets, pigeon guillemots and grebes.
NPS-34	New strategy 5/01	Kwina Slough (south entrance) WHA0394 48º-46.420'N 122º-36.070'W	Exclusion - Keep oil out of slough and protect water intake.	300'	Deploy boom across south entrance to slough.	Stage at the Bellingham Marina.	By boat from Bellingham or Anacortes. No vehicle access.	Slough water intake.
NPS-35	Field visit 4/00	Whatcom Creek (Whatcom Waterway near the Roeder Avenue overpass) WHA0419 48º-45.170'N 122º-29.090'W	Exclusion - Keep oil from moving up into the mouth of Whatcom Creek.	300'	Deploy boom at an angle across the waterway under the Roeder Avenue/ Chestnut Street bridge. A small workboat or skiff will be needed to deploy the boom.	Stage at the Marine Heritage Center parking lot, or at the Bellingham Marina (WHA0414).	By boat from the Bellingham Marina; vehicle access from I-5 Lakeway Drive exit, go west to Holly Street and follow to waterway.	Salmon stream, fish hatchery at Heritage Center.
NPS-36		Padden Creek WHA0431 48º-43.315'N 122º-30.485'W	Exclusion - Keep oil out of creek.	200'	Deploy boom across creek mouth at railroad trestle. Anchor to trestle pilings. Can be deployed from land.	Stage at parking lot for boat ramp on south end of trestle.	By boat from ramp on south end of trestle; vehicle access from I-5 Fairhaven exit, go west on Fairhaven Parkway to 12th St., go north to Harris Ave., west to 6th St. and north to site.	Tidal stream, wetland habitat.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-37	New strategy 5/01	Lagoon at the Port of Bellingham Marine Park WHA0433 48º-43.105'N 122º-31.010'W	Exclusion - Keep oil out of lagoon.	200'	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.	Stage at the Port of Bellingham Marine Park.	By boat from the ramp at Padden Creek; vehicle access from I-5 Fairhaven exit, go west on Fairhaven Parkway to 12th St., go north to Harris Ave. and west to site.	Habitat for waterfowl and fish.
NPS-38		Post Point Lagoon WHA0436 48º-42.615'N 122º-31.055'W	Exclusion - Keep oil out of lagoon.	200'	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.	Stage at the Padden Creek boat ramp.	By boat from the ramp at Padden Creek; no vehicle access.	Habitat for waterfowl and fish.
NPS-39		Chuckanut Creek WHA0449 48º-42.615'N 122º-31.055'W	Exclusion - Keep oil out of creek & North Chuckanut Bay.	400'	Deploy boom in chevron configuration in front of gap in railroad trestle to isolate bay and creek. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges.	Stage at the Padden Creek boat ramp.	By boat from the ramp at Padden Creek; no vehicle access.	Waterfowl, clam beds, cancer crabs.
NPS-40	New strategy 5/01	Second Cove North of Pleasant Bay WHA0460 48º-40.275'N 122º-29.510'W	Exclusion - Keep oil out of cove.	1200'	Deploy boom at a similar angle to NPS-41 to close off the cove.	Stage at Larrabee State Park.	By boat from the Larrabee State Park or the Padden Creek ramp. No vehicle access.	Waterfowl, clam beds, eelgrass beds.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-41	New strategy 5/01	First Cove North of Pleasant Bay WHA0461 48º-40.135'N 122º-29.735'W	Exclusion - Keep oil out of cove.	1300'	Deploy boom from Chuckanut Point to the opposite shore on the point to the northeast.	Stage at Larrabee State Park.	By boat from the Larrabee State Park or the Padden Creek ramp. No vehicle access.	Waterfowl, clam beds, cancer crabs.
NPS-42		Pleasant Bay WHA0462 48º-40.010'N 122º-30.140'W	Exclusion - Keep oil out of bay.	1300'	Deploy boom from Chuckanut Point to the opposite shore on the peninsula to Governors Point.	Stage at Larrabee State Park.	By boat from the Larrabee State Park or the Padden Creek ramp. No vehicle access.	Waterfowl, clam beds, cancer crabs.
NPS-43		Larrabee State Park, Wildcat Cove WHA0476 48º-39.170'N 122º-29.670'W	Exclusion - Protect State Park, keep oil out of Wildcat Cove.	800'	Deploy boom across the entrance of the cove.	Stage at Larrabee State Park.	By boat from the Larrabee State Park or the Padden Creek ramp. Vehicle access to the ramp from I-5 exit 250, go west to Chuckanut Drive (Hwy 11) and follow it south to the park.	State Park.
NPS-44	New strategy 5/01	Colony Creek SKA0215 48º-36.030'N 122º-25.550'W	Exclusion - Keep oil out of Colony Creek.	300'	Deploy boom across the entrance to the creek in front of the railroad trestle. Necessary only at high tide. Can be deployed from land.	Stage at the end of the dirt road on the south side of the creek mouth.	By boat from Larrabee State Park, boat access at high tide only. Vehicle access from I-5 exit 236, go west on Bow Hill Road to Chuckanut Drive (Hwy 11), go north to site.	Salmon stream, marsh habitat, waterfowl.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-45	Field visit 8/95	Edison Slough SKA0231 48º-33.865'N 122º-27.165'W	Exclusion - Keep oil out of Edison Slough.	300'	Deploy boom across entrance to slough. Can only be deployed at high tide, boat access only and area becomes a mudflat at low tide.	Stage in Edison or at the site for NPS-44.	By boat from the Larrabee State Park ramp or from Anacortes; no vehicle access.	Marsh, salmonids, waterfowl.
NPS-46	Field visit 8/95	Samish River SKA0241 48º-33.310'N 122º-27.310'W	Exclusion - Keep oil out of the Samish River.	300'	Deploy boom approx. 1000' down stream from bridge over Bayview-Edison Road. Necessary only on high flood tide.	Stage along dirt road off the northeast side of the bridge on the Bayview- Edison Road.	By boat from the Larrabee State Park ramp or from Anacortes; vehicle access from the staging area.	Marsh, salmonids, waterfowl.
NPS-47	New strategy 5/01	Alice Bay (South Entrance) SKA0248 48º-33.590'N 122º-29.195'W	Exclusion - Keep oil out of Alice Bay.	300'	Deploy boom across south entrance at the foot bridge. The island between the north and south entrances is very low and may not block oil at extreme high tides. May be able to deploy from land. Area is shallow and becomes a mudflat at low tide.	Stage at private property at foot bridge, at Camp Kirby, or at Bayview State Park.	By boat from the Larrabee State Park ramp or from Anacortes; vehicle access from I-5 exit 236, go west on Bow Hill Road to Bayview-Edison Road, to Samish Island Road, to private drive at south end of Alice Bay.	Marsh, salmonids, waterfowl.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-48	New strategy 5/01	Alice Bay (North Entrance) SKA0257 48º-34.045'N 122º-29.515'W	Exclusion - Keep oil out of Alice Bay.	900'	Deploy boom across the north entrance from the south shoreline on Scotts Point. The island between the north and south entrances is very low and may not block oil at extreme high tides. Area is shallow and becomes a mudflat at low tide.	Stage along road to Scotts Point, at Camp Kirby, or at Bayview State Park.	By boat from the Larrabee State Park ramp or from Anacortes; vehicle access from I-5 exit 236, go west on Bow Hill Road to Bayview-Edison Road, to Samish Island Road, to road to Scots Point; access through private property. May need helicopter support.	Marsh, salmonids, waterfowl.
NPS-49	Field tested 5/98	William Point (200' South of Light) SKA0276 48º-34.955'N 122º-33.650'W	Deflection/ Collection - Deflect oil out into open water or collect to prevent oil from moving north into Samish Bay.	1000'	Deploy boom from gravel beach south of light at an angle to deflect the oil into deeper water, or at an angle to collect oil with a skimmer at the end of the boom. Current can be strong in this area, and boom should be tended.	Stage at Camp Kirby or Bayview State Park.	By boat from the Larrabee State Park ramp or from Anacortes; no vehicle access.	Samish Bay resources.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-50	New strategy 5/01	Camp Kirby SKA0278 48º-34.455'N 122º-33.490'W	Collection - Prevent oil from moving up beach from the south.	1000'	Deploy boom from end of spit at Camp Kirby to enhance natural collection area.	Stage at Camp Kirby.	By boat from Anacortes; vehicle access from I-5 exit 236, go west on Bow Hill Road to Bayview-Edison Road, to Samish Island Road and follow to camp, vac truck access to beach at camp. Call the camp at 360-766-6060 for access.	Protect resources to the north, Samish Bay.
NPS-51	Field visit 3/98	Pocket Marsh North of Joe Leary Slough (eastern shore of Padilla Bay) SKA0299 48º-32.185'N 122º-29.295'W	Exclusion - Keep oil out of marsh.	1200'	Deploy boom to close off pocket marshes. Pilings in front of marshes can be used to help anchor the boom. Area is shallow and becomes a mudflat at low tide.	Stage at Bayview State Park.	By boat from Anacortes, you need a 7' plus tide to reach the area. No vehicle access. May need helicopter support.	Salt marsh, waterfowl habitat, shorebirds.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-52	Field visit 3/98	Joe Leary Slough SKA0306 48º-31.185'N 122º-29.100'W	Exclusion/ Collection - Keep oil out of marsh, Collect if feasible.	1600'	Deploy boom in a chevron configuration with point of apex facing west. Area is shallow and becomes a mudflat at low tide.	Stage at Bayview State Park.	By boat from Anacortes, you need a 7' plus tide to reach the area. There is road access on the south side of the slough through a private orchard (contact Merritt's Apples 360-766-6224 for access). From I-5 exit 236, go west on Bow Hill Road to Bayview-Edison Road to site. May need helicopter support.	Salt marsh, waterfowl habitat and sand lance larvae.
NPS-53	Field visit 3/98	Oswald's salt marsh SKA0310 48º-30.580'N 122º-29.115'W	Exclusion - Protect salt marsh behind crumbling pilings.	800'	Deploy boom to close off gaps between pilings in front of Oswald's salt marsh. Area is shallow and becomes a mudflat at low tide.	Stage at Bayview State Park, or along Bayview- Edison Road.	By boat from Anacortes, you need a 7' plus tide to reach the area. Vehicle access from Bayview-Edison Road; from I-5 exit 236, go west on Bow Hill Road to Bayview- Edison Road to site. May need helicopter support.	Salt marsh, waterfowl habitat, shorebirds, oysters, Sand Lance larvae and State Park.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-54	Field visit 3/98	Sullivan Minor salt marsh SKA0312 48º-30.205'N 122º-29.045'W	Exclusion - Keep oil out of salt marsh.	2800'	Deploy boom along the length of the Sullivan Minor salt marsh, from Oswald's marsh to Persons Road. Area is shallow and becomes a mudflat at low tide.	Stage at Bayview State Park, or along Bayview- Edison Road.	By boat from Anacortes, you need a 7' plus tide to reach the area. Vehicle access from Bayview-Edison Road; from I-5 exit 236, go west on Bow Hill Road to Bayview- Edison Road to site. May need helicopter support.	Salt marsh, waterfowl habitat, shorebirds, oysters, Sand Lance larvae and State Park.
NPS-55	Field visit 3/98	Indian Slough (southern end of Padilla Bay) SKA0331 48º-28.065'N 122º-28.720'W	Exclusion - Keep oil out of slough.	1600'	Deploy boom in a chevron configuration with apex pointing north. Deploy 400' for the west leg from the west side of the slough entrance directly north to the east end of Dike Island and to the apex anchor point in the main channel, which will also block the eastern opening between Dike Island and the mainland. Deploy 1200' for the east leg from the east side of the slough entrance to the apex. Area is shallow and becomes a mudflat at low tide.	Stage at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp. Potential vehicle assess from the Padilla Bay bike trail on the east side of the slough, contact the Padilla Bay Reserve at 360-428-1558 for access. May need helicopter support.	Salt marsh habitat, harbor seals, waterfowl and shorebird concentrations.
NPS-56		West end of Dike Island SKA0334 48º-27.805'N 122º-29.475'W	Exclusion - Keep oil out of area behind Dike Island.	500'	Deploy boom across western opening between Dike Island and the mainland. Area is shallow and becomes a mudflat at low tide.	Stage at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp. No vehicle access. May need helicopter support.	Salt marsh habitat, harbor seals, waterfowl and shorebird concentrations.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-57	Field visit 3/98	Telegraph Slough (southern end of Padilla Bay) SKA0335 48º-27.685'N 122º-29.670'W	Exclusion - Keep oil out of slough.	2600'	Deploy two 1300' legs of boom to form a chevron with the apex facing northwest. Area is shallow and becomes a mudflat at low tide.	Stage at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp. No vehicle access. May need helicopter support.	Salt marsh habitat, harbor seals, waterfowl and shorebird concentrations.
NPS-58	Field visit 3/98	Swinomish Channel (under Highway 20 bridge) SKA0592 48º-27.320'N 122º-30.830'W	Deflection/ Collection - Keep oil from moving into the Swinomish Channel.	2000'	Deploy two 500' booms on each side of the channel between the railroad trestle and the Highway 20 bridge to deflect the oil moving into the channel to collection sites along the shoreline.	Stage at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp. Vehicle access from I-5 to Highway 20, go west to the boat ramp on the east side of the channel. Vac truck access on both sides of the channel.	Wetland habitat; waterfowl and shorebirds.
NPS-60	New strategy 5/01	Whitemarsh Junction SKA0350 48º-27.695'N 122º-31.380'W	Exclusion - Keep oil out of the marsh.	200'	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.	Stage at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp. Vehicle access from I-5 to Highway 20, go west and exit at the Swinomish Casino, follow the dirt road along the railroad tracks on the east side of the trestle.	Wetland habitat; waterfowl and shorebirds.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-61	Field visit 3/98	Northeast Shoreline of March Point SKA0362 48º-29.715'N 122º-33.280'W	Exclusion - Keep oil off nearshore area and beach.	3000'	Starting at the boat ramp on the NE corner of March Point, deploy the boom along the shoreline 100-300 feet off the beach in a southerly direction, and bring the south end back in and anchor on the beach. Add boom as it becomes available and time allows (priority will depend on the trajectory) to protect as much beach as possible down to North Texas Road.	Stage at the boat ramp on March Point Road or at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp, or from Anacortes. Vehicle access from March Point Road. Most of the beach becomes exposed at low tide, may need helicopter support.	Smelt spawning, herring, sand lance spawning, waterfowl, clam beds and shorebirds.
NPS-62		March Point SKA0363 48º-30.025'N 122º-33.470'W	Deflection/ Collection - Prevent oil from moving around March Point to the east and south.	1000'	Deploy boom at an angle from the tip of March Point to collect oil moving along the beach from the west. Extend boom to 1500' if it will improve collection efficiency and the currents allow it.	Stage at the boat ramp on March Point Road or at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp, or from Anacortes. Vehicle access on March Point Road.	Smelt spawning, herring, sand lance spawning, waterfowl, clam beds and shorebirds.
NPS-63	Field visit 8/03	Tidal Lagoon North of Crandall Spit SKA0370 48º-29.630'N 122º-34.655'W	Exclusion - Keep oil out of tidal lagoon.	200'	Deploy boom across the entrance to the lagoon on the north shore of Crandall Spit. Can be deployed from land.	Stage along March Point Road.	By boat from Anacortes. Vehicle access on March Point Road.	Wetland habitat; waterfowl and shorebirds.
NPS-64	Field tested 8/03	Crandall Spit SKA0371 48º-29.305'N 122º-34.835'W	Exclusion - Keep oil out of cove south and east of Crandall Spit.	1200'	Deploy boom across cove between the Shell recreation area and Crandall Spit. Pilings on each side of the cove can be used as anchor points. Cove becomes a mudflat at low tide.	Stage along March Point Road or at the Equilon recreation area.	By boat from Anacortes. Vehicle access on March Point Road.	Herring and smelt spawning, dungeness crab, sand lance larvae.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-65	Field visit 8/95	Causeway Across Fidalgo Bay SKA0374 48º-28.835'N 122º-34.680'W	Exclusion - Prevent oil from entering south Fidalgo Bay.	2200'	Deploy boom in a chevron configuration across the causeway opening . Anchor to the Railroad trestle.	Stage along March Point Road or at the Equilon recreation area.	By boat from Anacortes. Vehicle access on March Point Road.	Seagrass, saltmarsh, smelt, herring, clams, crab, waterfowl, shorebirds, harbor seals.
NPS-66	Field visit 8/95	Weaverling Spit SKA0388 48º-28.980'N 122º-35.045'W	Exclusion - Protect shoreline habitat on Weaverling Spit.	4000'	Deploy boom in a chevron configuration with a 1000' leg from the railroad causeway to the tip of Weaverling Spit, and a 3000' leg from the tip of the spit to the beach near Highway 20.	Stage from R/V Park on Weaverling Spit.	By boat from Anacortes. Vehicle access from Fidalgo Bay Road. From Highway 20, turn right onto Fidalgo Bay Road near the southwest end of Fidalgo Bay.	Herring & smelt spawning, sand lance larvae, hard shell clams, waterfowl & shorebird concentrations, seal haulouts.
NPS-67	New strategy 5/01	Cap Sante Park SKA0402 48º-30.800'N 122º-36.125'W	Collection - Keep oil from moving north into Guemes Channel.	1000'	Deploy boom at an angle from the beach at the picnic area in Cap Sante Park.	Stage from the Cap Sante Marina parking lot.	By boat from Anacortes. Potential vehicle access to picnic area on a pedestrian path. From Highway 20 in Anacortes, continue north on Commercial Avenue to 4th Street, turn right to "T"Avenue and right again to the park.	Fidalgo Bay and Guemes Channel resources.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-68	New strategy 8/01	Long Bay (Southeast corner of Guemes Island) SKA0068 48º-32.095N 122º-34.545'W	Exclusion - Keep oil out of the bay.	1000'	Deploy boom across the bay from the rocky point on the south side of the bay, to the beach to the northwest.	Stage from from Anacortes or Bellingham.	By boat from Anacortes or Bellingham.	Cultural/ archeological site.
NPS-69		Pocket Beach on North Side of Fidalgo Island SKA0410 48º-31.255'N 122º-36.965'W	Exclusion - Keep oil off of the pocket beach.	500'	Deploy boom along shore from the north end of "M" Avenue to "O" Avenue.	Stage at the north end of "N" or "M" Avenue.	By boat from Anacortes. Vehicle access from "N" or "M" Avenue. From Highway 20 in Anacortes, continue north on Commercial Avenue to 4th Street, turn left and go one block to "O" Avenue.	Surf smelt spawning habitat.
NPS-70		Pocket Beach on North Side of Fidalgo Island SKA0412 48º-31.100'N 122º-37.480'W	Exclusion - Keep oil off of the pocket beach.	500'	Deploy boom along shore from the north end of "H" Avenue to "I" Avenue at the ferry terminal (Guemes Island ferry).	Stage at the ferry terminal on "I" Avenue.	By boat from Anacortes. Vehicle access from "I" Avenue at the ferry terminal.	Surf smelt spawning habitat.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-71		Ship Harbor SKA0420 48º-30.345'N 122º-40.465'W	Exclusion - Keep oil out of Ship Harbor.	3600'	Deploy boom from pilings at the ferry terminal to where road comes down to shore southeast of the terminal. Run boom along outside piling line. Keep boom outside mudflats so it does not dry out at low tide. Anchor offshore, not to pilings.	Stage at Washington Park.	By boat from Washington Park or Anacortes. Vehicle access to the ferry terminal and to the beach on a road southeast of the terminal, from I-5 to Highway 20 west, follow signs to the ferry terminal.	Sand lance and surf smelt spawning habitat. Large concentration of dungeness crabs, eelgrass beds, waterfowl, shorebirds, and sea urchins.
NPS-72	Field visit 6/99	Shannon Point Research Lab SKA0424 48º-30.560'N 122º-41.070'W	Exclusion - Protect seawater intake to lab and shoreline sites.	1200'	Deploy 200' of boom from shore to the Shannon Point daymarker, another 200' of boom from shore to the "submerged crib" (on chart), and 800' of boom parallel to shore to connect the two 200' legs (from the daymarker to the submerged crib).	Stage at Washington Park.	By boat from Washington Park or Anacortes. Vehicle access to the lab from I-5 to Highway 20 west (follow signs to ferry), turn left onto Sunset Avenue and right onto Shannon Point Road.	Marine laboratory sea water intake, seabirds, and shoreline habitat.
NPS-73	New strategy 5/01	Sunset Beach SKA0427 48º-30.085'N 122º-41.555'W	Exclusion - Keep oil off of Sunset Beach.	1100'	Deploy boom from the rocks at each end of the gravel beach in Washington Park (at the boat ramp).	Stage at Washington Park.	By boat from Washington Park or Anacortes. Vehicle access to the park from I-5 to Highway 20 west (follow signs to ferry), turn left onto Sunset Avenue to park entrance.	Surf smelt spawning habitat.

4.3.2.2 Proposed Booming and Collection Strategies: Matrices - NORTH PUGET SOUND

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NPS-74		Burrows Pass SKA0435 48º-29.540'N 122º-41.275'W	Diversion/ Collection - Prevent oil from moving into Burrows Bay.	1000'	Deploy boom at an angle out from the cove west of Flounder Bay in Burrows Pass to collect oil moving along the shore from the west. The current in Burrows Pass can be very strong and may require less boom to be deployed at a sharper angle.	Stage at the Skyline Marina or Washington Park.	By boat from the Skyline Marina or the Washington Park ramp. Vehicle access from I-5 to Highway 20 west (follow signs to ferry), turn left onto Sunset Avenue and left again onto Skyline Way, then turn right onto Hughes Lane to the cove.	Sea urchins, abalone, Burrows Bay resources.
NPS-75	Field visit 8/01	Secret Harbor (Southeast Side of Cypress Island) SKA0164 48º-33.350N 122º-41.360'W	Exclusion - Keep oil out of the harbor.	1000'	Deploy boom across the narrowest part of the entrance to the harbor, from the rocky point on the south side of the harbor, directly north to the north shore. Attach boom to the shore or trees, and anchor to maintain position.	Stage from from Anacortes or Bellingham.	By boat from Anacortes or Bellingham.	Feeding habitat for marbled murrelets, eelgrass beds.
NPS-76	Field visit 8/01	Eagle Harbor (Northeast Side of Cypress Island) SKA0185 48º-35.360N 122º-41.835'W	Exclusion - Keep oil out of the harbor.	1300'	Deploy boom from the ramp on the west shoreline. No attachment point is available at the east bluff; anchor the boom in as near as possible to the bluff.	Stage from from Anacortes or Bellingham.	By boat from Anacortes or Bellingham.	Feeding habitat for marbled murrelets, eelgrass beds.

APPENDICES

Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments ex-cavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	• Bulldozer/Motor grader -1 • Personnel - equipment operator & 1 worker • Misc. - plastic or geotextile sheeting	• High wave energy • Large tidal range • Strong along shore currents
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	• Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord	• Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m^2 • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc.	• Waves > 25 cm • Currents > 0.5 m/s • Tidal range > 2 m
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	• Loader - 1 • Personnel - equipment operator & 1 worker or several workers w/shovels	• Waves > 25 cm • Tidal range exceeding dam height • Freshwater outflow

NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: • Boom - 280 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, drogues, connectors, etc.	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom • Boats - 1 • Personnel - boat crew & 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc.	• Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed • Boom - 200 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, bridles, connectors, etc. Portable • Hoses - 30 m discharge • Oil storage - 2000 liters	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

Appendix B: Original Geographic Response Plan Contributors

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Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors, please notify one of the following agencies: or use tear out sheet (page C-3)

- Washington Department of Ecology, SPPR program, Natural Resources Unit
- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

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Planning Department
MSO Portland
6767 North Basin Ave
Portland, OR 97217-3992

Washington Department Of Ecology
SPPR Program
Natural Resources Unit
P.O. Box 47600
Olympia, WA 98504-7600

Oregon Department of Environmental Quality
Water Quality Division
811 SW Sixth Avenue
Portland, OR 97204

Office Of The Governor
Idaho Emergency Response Commission
1109 Main
Statehouse
Boise, ID 83720-7000

Environmental Protection Agency
Emergency Response Branch
1200 Sixth Avenue
Seattle, WA 98101

Geographic Response Plan

Comments/Corrections/Suggestions

Directions:
Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to: Dale Davis
Department of Ecology
300 Desmond Drive
P.O. Box 47600
Olympia, WA 98504-7600
dald461@ecy.wa.gov

Name: _____ Title:_____ Agency:_____

Address:_____

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Phone: (____) _____ E-Mail:_____

GRP:_____Page Number:_____

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Comments:_____

Northwest Area Committee
c/o Washington Department of
Ecology
Spills Program
Natural Resources Unit - GRP
Corrections
P.O. Box 47600
Olympia, WA 98504-7600